

# CIO

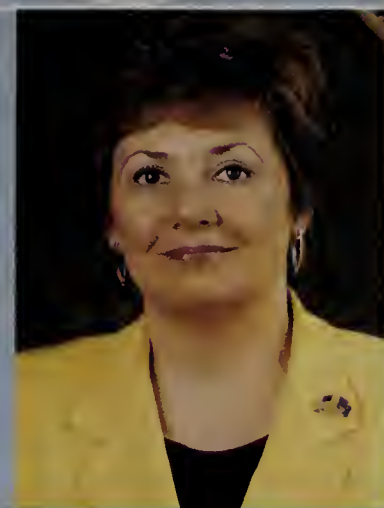
THE RESOURCE FOR INFORMATION EXECUTIVES

THE 17TH ANNUAL  
**CIO 100  
AWARDS**

These enterprises move  
quickly, adapt intelligently  
and create advantage in  
a world in flux.

# The. Agile

TECHNOLOGY \* STAFFING \* GOVERNANCE \* OPERATIONS



COUNTERCLOCKWISE FROM TOP:  
Joseph Kraus, CIO, Intelsat; Marina  
Levinson, CIO, palmOne; Michael  
G. Williams, CIO, The New York  
Times Co.; Mae De Vincentis, CIO,  
Defense Logistics Agency; David  
Zink, CIO, Blue Cross & Blue Shield  
of Rhode Island



# "I see change in Memphis, I see change in Beijing."

"At FedEx, customer demand fluctuates on a global scale. To manage that change, we need the tools to oversee a worldwide network — systems to monitor flights to over 200 countries, and track nearly 6 million packages a day.

"HP prescribed the perfect management solution using HP OpenView. Now we monitor far-flung data centers from central locations. And we can boost support to hotspots before problems affect customers.

"Our IT personnel are prepared for sudden spikes in demand. And that translates into a higher quality customer experience. HP really delivered."

*—Robert Carter, CIO, FedEx*

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Solutions for the adaptive enterprise.





# "For the world's children, our IT is a lifeline."

"Reaching children with goods and services in the world's most challenging environments demands adaptive IT systems that provide reliable services anywhere.

"Using HP's OpenView, we oversee UNICEF's entire IT setup in 158 countries and 240 locations. Our global help desk provides critical IT services and business support 24 hours every day.

"UNICEF partners with governments to keep their promises to each new generation. When it comes to protecting children, we can't afford to fail. Neither can our IT."

*-André Spatz, CIO, UNICEF*

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Solutions for the adaptive enterprise.





# "Change is easier with someone who knows it."

"As a leading wireless provider, Vodafone UK faces change daily – from customers, from ourselves. Two years ago, we envisioned a way to deploy a whole new suite of services, which meant we had to change our IT significantly.

"Building on different platforms and management systems, HP helped us create a structure that combined multiple operating platforms, applications and databases.

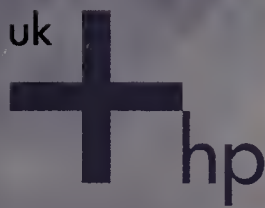
"Now our groups not only communicate better, but collaborate effectively to deliver a wide range of services, and add to them regularly.

"Today, supported by an integrated partnership with HP, Vodafone UK prospers. And frankly, we've changed how we work."

*–Chris Burke, CTO, Vodafone UK*

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# The Agile 100

**FROM TOP TO BOTTOM:**

**Michael G. Williams**, CIO,  
The New York Times Co.

**Marina Levinson**, CIO,  
palmOne

**David Zink**, CIO, Blue Cross &  
Blue Shield of Rhode Island

**Mae De Vincentis**, CIO,  
Defense Logistics Agency

**Elliot Schlanger**, CIO,  
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THE 17<sup>TH</sup> ANNUAL CIO100 AWARDS THE 17<sup>TH</sup> ANNUAL CIO100 AWARDS THE 17<sup>TH</sup> ANNUAL CIO100 AWARDS

## Features

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This year's honorees teach us how to marry IT agility with enterprise agility in order to move quickly, adapt intelligently and create advantage in a rapidly changing world. *By Edward Prewitt*

### PROFILE | DEFENSE LOGISTICS AGENCY

#### Inside an Agile Transformation | 48

How centralized IT helps get supplies into the hands of our military around the world. *By Stephanie Overby*

### I.T. MANAGEMENT

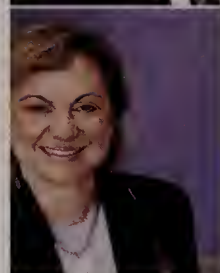
#### How to Build an Agile IT Department | 58

You can't be a little bit agile. You can't be agile in one area and not in another. You need agility in staffing, architecture, budgeting, governance, vendor relations and programming. And if that sounds like a lot, well, it is. But it's worth it. *By Meridith Levinson*

### SUPPLY CHAIN

#### The Supply Supply Chain | 66

Agile companies can adjust their operations to cope with unexpected events, whether it's a surge in new business or a backlog in the warehouse. Four CIO 100 honorees tell how IT makes them and their trading partners flexible. *By Tracy Mayor*



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M&A benefits can be lost if IT and business leaders don't act quickly to make staffing and organizational decisions, integrate systems and provide training. *By Kim Girard*

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#### Cost-Cutting | 72

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*By Megan Santosus*

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*By Thomas Wailgum*

### HONOREES

#### Index of Winners | 84

All 100 listed alphabetically by industry.



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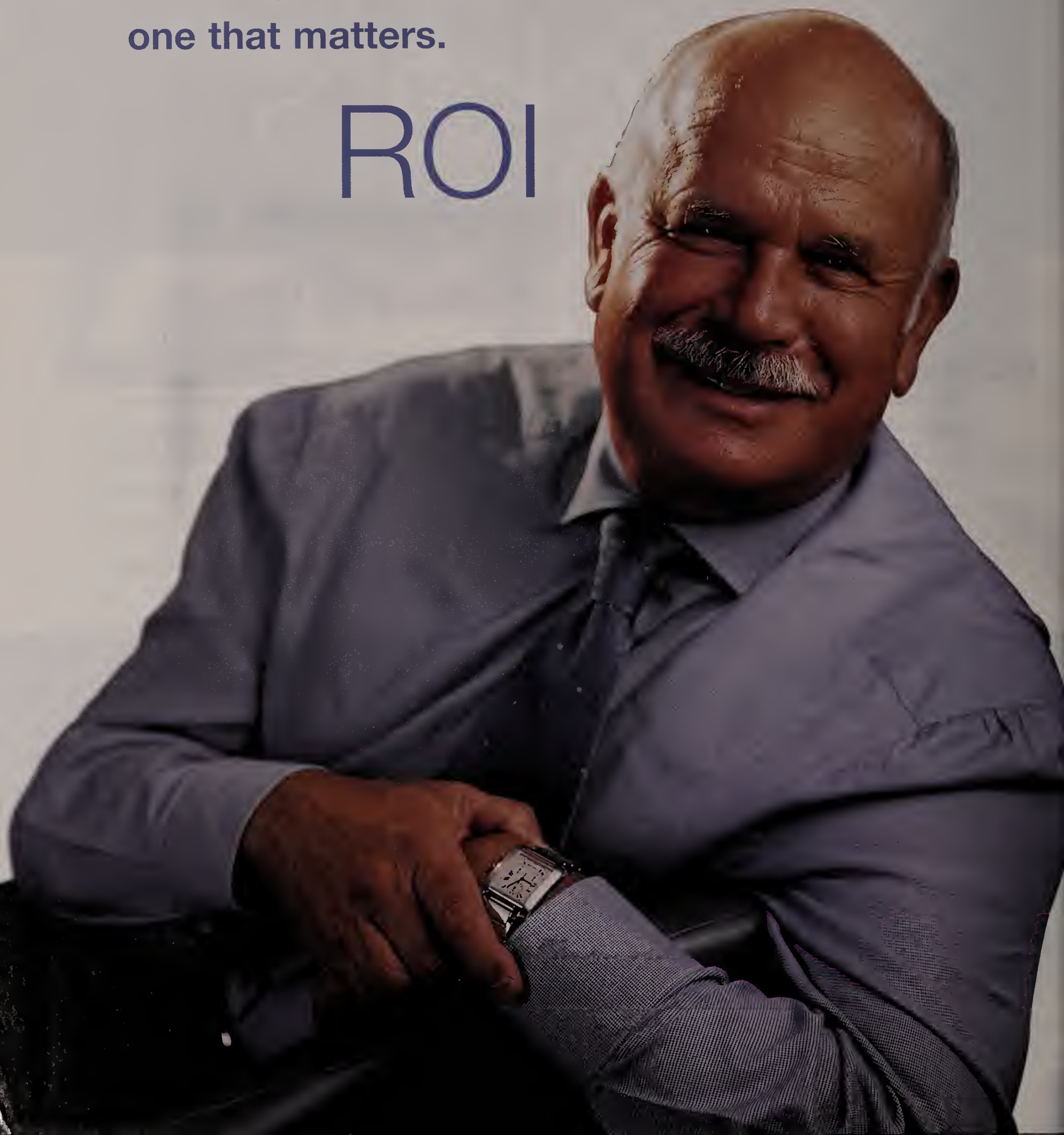
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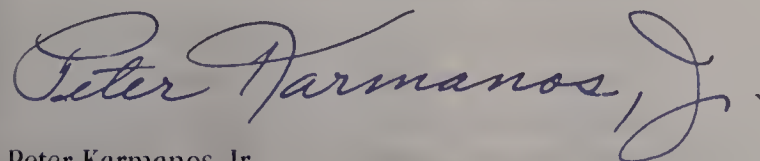
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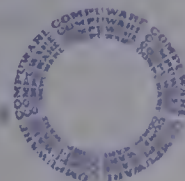
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Compuware Corporation





## Columns

### TOTAL LEADERSHIP

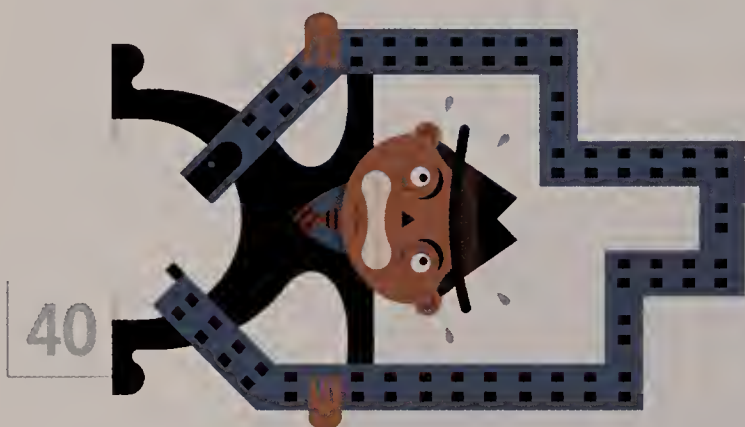
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Bounce back from adversity with a clear head and a can-do approach. *By Patricia Wallington*

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Locking down IT costs may save you money in the long run. *By Richard Pastore*

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Abstracts of all the feature stories found in this issue.

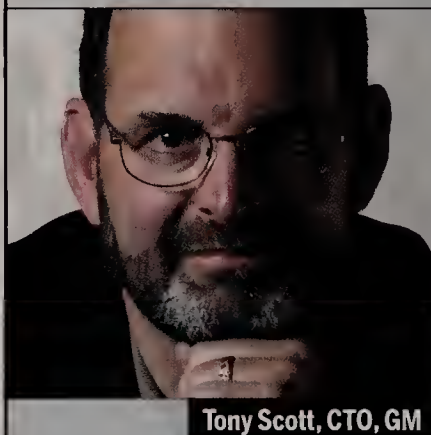
## INTERACTIVE >>features

from August 15 to August 31

### TAKE THE QUIZ

#### How Agile Are You—or Do You Want to Be?

When it comes to agility, some of us just come by it more naturally than others. If you're looking to increase your own IT agility, take the **The Agile 100 Quiz**. Benchmark your answers against the CIO 100 honorees who took our agility survey and learn what specific actions you can take to improve your score. Go to [www.cio.com/agilityquiz](http://www.cio.com/agilityquiz).



Tony Scott, CTO, GM

### IN-DEPTH INTERVIEW

#### A New Blueprint for the Agile

Tony Scott, CTO of GM's Information Systems and Services group, explains GM's take on enterprise architecture, how he's leveraging it and why he doesn't dare call it "enterprise architecture" in front of the company's senior executives. Find the story at [www.cio.com/printlinks](http://www.cio.com/printlinks).

### LIVE (ALMOST) FROM THE CIO 100 AWARDS

#### Wish You Were There?

This year's CIO 100 Symposium & Awards Ceremony takes place August 22–24 in Colorado Springs, Colo. If you can't join the honorees in the mountains, get the highlights of the proceedings by reading the **CIO 100 Blog**. Log on to [www.cio.com](http://www.cio.com) to find the view from the top.

### ESSENTIAL

### TECHNOLOGY | 94

#### Agile Insurance

When the regulators came knocking, Pinnacol Assurance had to move quickly to save millions in revenue. *By Thomas Wailgum*

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How interactive technology may help people interact better with each other.



All those who need to understand how to  
integrate IT controls with the Sarbanes-Oxley  
internal control reporting requirements...Say i<sup>®</sup>



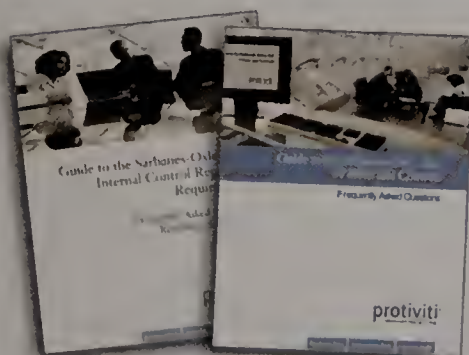
## The Facts

IT controls are often at the center of the internal control environment. Forward-thinking companies are actively addressing the impact of Information Technology risks and controls as an integrated component of their response to the Sarbanes-Oxley internal control requirements. Appropriate consideration of technology controls can significantly enhance management's ability to rely on other controls and could enable reductions in other process documentation and testing. Have you evaluated how the IT controls impact your financial reporting? What is your strategy for integrating IT risks and controls with your evaluation of internal control over financial reporting? Can you validate the operating effectiveness of key IT controls? Do you have the insight of an independent advisor?

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Business Risk

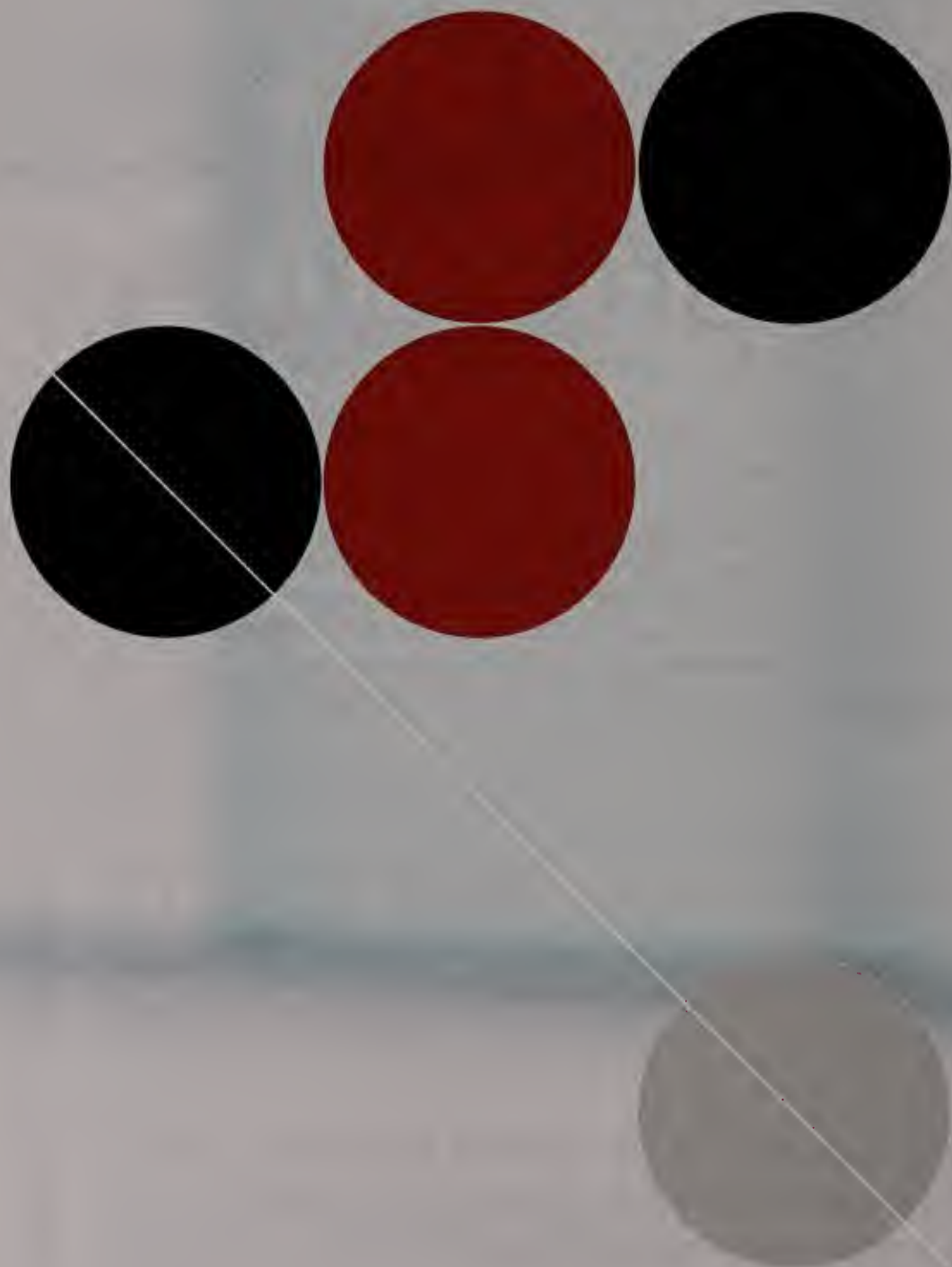
Technology Risk

Internal Audit





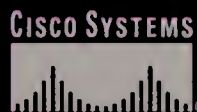
WHEN YOU STEPPED AWAY  
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DETECTED, QUARANTINED AND  
ELIMINATED BEFORE ANYONE  
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# From the Editor



How fixated are you on agility? Find out with the "Agile 100 Quiz." Benchmark yourself against our honorees to see what you can do to reach a perfect score of 100. Find the quiz at [www.cio.com/agilityquiz](http://www.cio.com/agilityquiz).



2004  
GRAND  
NEAL  
WINNER

For the second year in a row, *CIO* magazine has won the prestigious Jesse H. Neal National Business Journalism Award for editorial excellence.

## Fixed Versus Flexible

**THIS YEAR'S CIO 100** theme is agility, and with IT costs still weighing on most corporate minds, cost agility is one aspect that surfaced in researching the 100 agile companies that we honor in this issue (starting on Page 44). We asked each organization to tell us its overall percentage of fixed versus flexible IT costs. Some companies had very little in terms of cost agility; the lowest percentage of flexible costs reported was just 10. (Presumably, this honoree was highly agile in other areas of the business.) At the high end, one company claimed to keep 90 percent of its IT costs flexible. The average ratio among the CIO 100 companies worked out to be 65 percent fixed, 35 percent flexible.

It seems obvious that the more flexible your IT costs, the more responsive or agile your IT shop can be. CFOs love it. You can scale up or scale down, move money to fund new and sudden priorities more easily, and you aren't locked into a vise of fixed overhead costs that eat up your funding every year. But is there an optimal percentage for flexible costs? Is 35 percent good? Our agility experts couldn't tell us the prime target for flexible versus fixed IT costs. Even CFOs hem and haw about the magic number.

I think the hesitancy to fixate on a cost goal comes in part from the drawbacks to flexible cost structures. One of the main ways to keep costs nimble is by pursuing ultrashort contracts with

vendors, contractors and outsourcers. But then you sacrifice the better rate you would get from inking a long-term deal. Hiring contractors instead of permanent employees will keep payroll flexible, but it can take a toll on staff morale and limit the CIO's potential to groom future department leaders. It can also be more costly to pay contractor rates than employee salaries and benefits. (Remember the dotcom bubble days when contractors with two-year certificate degrees parked their Porsches in your reserved space?)

To me, cost flexibility also creates uncertainty, which can be scary when the budget is tight. Costs that aren't locked down can inflate suddenly as providers raise fees. It's like having an adjustable-rate mortgage when Alan Greenspan goes on a rate-hiking binge. I sleep much better knowing what my mortgage bill will be in 2018. In fact, I'd like to have at least half my household budget fixed and spoken for. And all deducted in advance from my paycheck (preferably pretax). I'd be very comfortable with what our CIO 100 companies have achieved, keeping a little more than one-third of total costs loosey-goosey. How about you? Do you have a prime target for flexible versus fixed IT costs? Is it one that you're comfortable with?

Richard Pastore, Deputy Editor  
[pastore@cio.com](mailto:pastore@cio.com)

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## **EVERYTHING.**

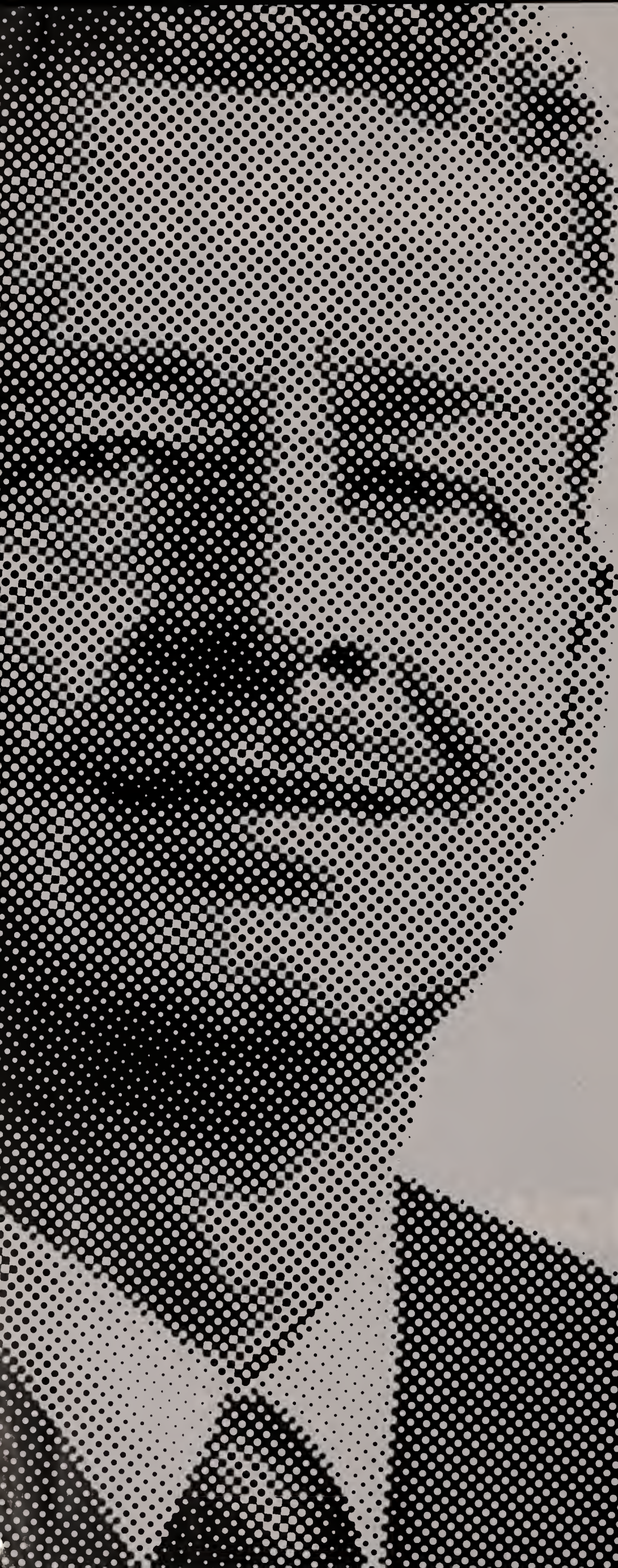
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Reiner Schmitt, IT Manager  
SAP AG



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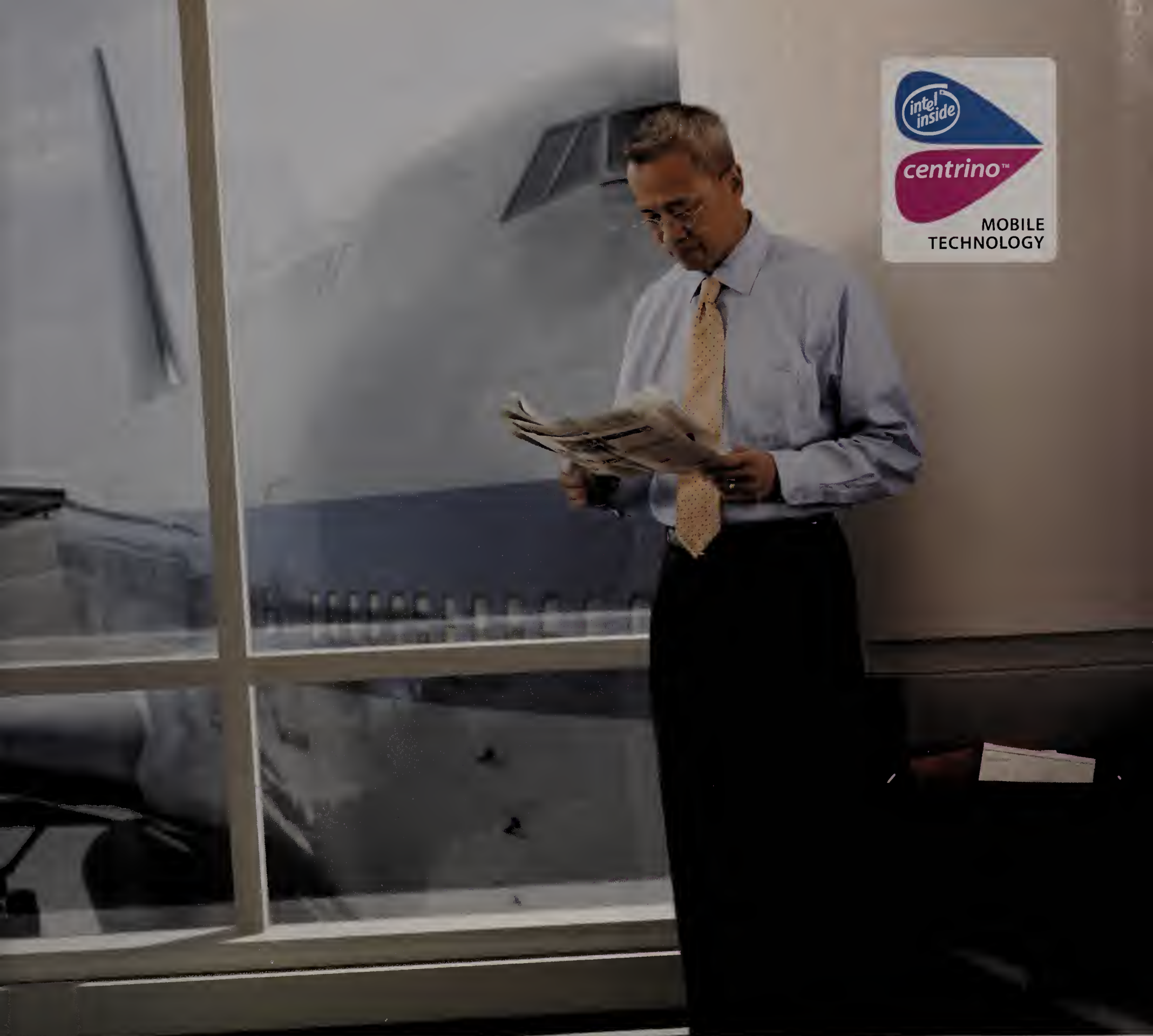
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# trendlines

the **NEW** the **HOT** the **UNEXPECTED**

Edited by Megan Santosus and Mindy Blodgett

## AUTOMOTIVE TECHNOLOGY

### Too High-Tech to Fix?

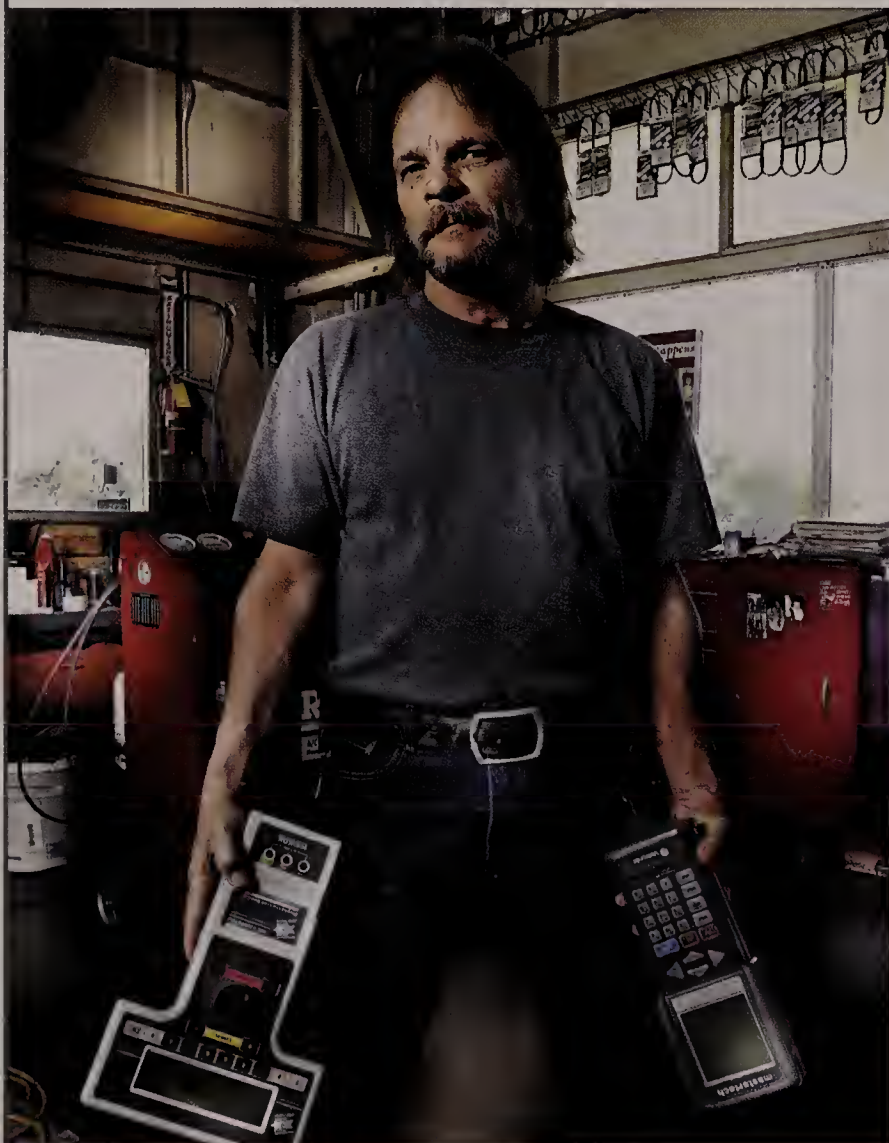
**Today's cars** are so complicated that the average do-it-yourselfer can't handle anything more involved than an oil change. "Models of cars have anywhere from 10 to 75 microcomputers on board, all of which network and talk to each other," says Mark Saxonberg, service technology manager for Toyota Motor Sales USA. That complexity is changing the nature of car repair—even for professional mechanics.

For example, when the air bag light flashes for no apparent reason, the car's owner may be instructed to take the vehicle to an auto mechanic. To diagnose the problem, the mechanic needs an appropriate scan tool: a testing device that, when used along with the appropriate software and plugged into a car's data port, tells the mechanic what's wrong with the air bag or any of the systems connected to that air bag. The problem for independent mechanics (those who don't work for an automaker's dealership) is that they have to buy scan tools for every make and model of car if they want to be able to repair any car with any problem.

And that comes with a price: Sophisticated scan tools cost between \$2,500 and \$35,000 depending on features, according to Charlie Gorman, executive manager of the Equipment and Tool Institute, a trade association that represents automotive equipment and tool manufacturers. There are scan tools for specific subsystems such as convertible tops and traction control. Automakers develop and sell scan tools for their cars; other scan tools are developed by companies such as Vetronix and Snap-on based on information provided by automakers.

For service departments at automakers' dealerships, buying scan tools is relatively straightforward; simply buy those tools for the models that are sold and serviced under warranty.

*Continued on Page 24*



Even with the appropriate scan tools, mechanics such as **DAVE LANSPEARY** of Dave's Auto Repair in Youngtown, Ariz., end up turning down work.

## CAREER MOVES

### Connecticut CIO Steps Down

**After seven years** as CIO for the state of Connecticut, Rock Regan stepped down from his post on Aug. 1. Regan's departure followed on the heels of Gov. John Rowland's resignation after revelations of inappropriately receiving gifts from people who did business

with the state. Rowland, who appointed Regan to the top IT spot, was succeeded by former Lt. Gov. Jodi Rell. It was the change of administration, says Regan, that compelled him to make his move. "The governor clearly wants to put her fingerprint on the administration,"

says Regan. "She will be appointing her own person here." (As of press time, Rell had not announced a new CIO.)

During his tenure, Regan also served a stint as president of the National Association of State CIOs.

As for his next job, Regan is currently "pondering the future." Until then, he will be doing plenty of fishing off Cape Cod.



**ROCK REGAN**, former CIO for the state of Connecticut





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## Scan Tools

*Continued from Page 22*

Independents have a trickier task. For those that want to keep their repair bays open to as many customers as possible, they have to make an investment in a variety of automakers' scan tools, a prospect that is not economically feasible for many small shops. If you've ever been turned away from your neighborhood mechanic because he couldn't figure out what that "check engine" light meant, chances are good that he didn't have the proper diagnostic tool.

Mechanics such as Dave Lanspeary of Dave's Auto Repair in Youngtown, Ariz., have turned away customers due to a lack of tools, but it wasn't because the necessary tool isn't available. "In 90 percent of cases like that, they were vehicles I made an

economic choice not to service," he says. And even with the appropriate scan tools, Lanspeary will turn down a job if his staff doesn't have the proper training.

Is the increasing complexity, cost and computerization of repair information going to put your neighborhood mechanic out of business? Bill Haas, vice president of service repair markets for the 13,000-member Automotive Service Association, doesn't think so. "Seventy-two percent of vehicles that are post-warranty are serviced outside of the franchise dealership," he says, a situation automakers are keenly aware of. "If a trusted mechanic doesn't have the tools, it's a reflection on the cars, not the mechanic."

While Gorman acknowledges that some automakers "play ball better" than others by making all their information readily available

at an affordable price, they all realize that providing comprehensive information and tools to third-party toolmakers and independent mechanics is a means to better customer service. Toyota's Saxonberg sees a future in which independent mechanics are increasingly specialized in one or two makes or models of cars. Gorman, on the other hand, sees the increasingly complicated computer systems eventually simplifying things.

secondary electrical systems. Secondary systems, Gorman says, can themselves be used to diagnose problems occurring with primary systems. "Future electrically controlled systems will require redundancy in the form of secondary systems, which are excellent for diagnoses," he says. In effect, by 2008 some cars will be so wired with software that they'll be able to tell mechanics what ails them.

No matter which scenario

## Buying scan tools for every make and model is not economically feasible.

In the future, he says, many automotive systems such as steering and throttle control (which are currently mechanical) will be electronically controlled, creating a need for redundancy in terms of

comes to pass, don't expect life to become any easier for the weekend mechanic. Most auto repairs will remain firmly seated in the domain of the professional.

—Megan Santosus

## SECURITY

# BlackBerrys Versus Terrorism

**Long an indispensable** gadget for businesspeople, the BlackBerry wireless handheld device from Research In Motion has been drafted into the United States' war on terrorism.

Massachusetts State Police officers patrolling Boston's Logan International Airport are using BlackBerrys to perform background checks on suspicious persons and vehicles, comparing information in the field to an Internet-based XML database from LocatePlus, the company that provides the devices. The 100-terabyte relational database contains information on more than 200 million U.S. residents, according to LocatePlus.

The LocatePlus database integrates data from a wide variety of public and private sources, including motor vehicle records. Using proprietary data mining technology, LocatePlus analyzes the data and assigns a security rating to individuals. Information is protected using SSL encryption, and each BlackBerry device must be registered with LocatePlus to access the information.

While the company does not disclose exactly how it determines security rankings, LocatePlus CEO Jon Latorella says factors such as whether someone has been a lifelong resident of the United States and the pattern of residences used can affect the rating. Similarly, a scarcity of information on an individual or a lack of a permanent address might raise flags, he says.

Since earning ignominious distinction as the point of departure for two of the four hijacked planes used in the Sept. 11 terrorist attacks, Logan has been an early adopter of technology that could be used to thwart future attacks.

In addition to a baggage screening system, Logan, in recent years, installed a document authentication system to verify the identities of potential employees. The airport has also tested a number of other technologies, including biometric authentication systems and thermal imaging cameras, according to the Massachusetts Port Authority, the state agency that runs Logan.

—Paul Roberts



**MASSACHUSETTS STATE POLICE** at Logan International Airport in Boston now have instant access via BlackBerry wireless devices to vast commercial databases that contain details on 200 million U.S. residents.





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# By the Numbers

By Jon Surmacz

## The Rising Cost of Compliance

As the number of regulations increases, so does the cost of complying with them

**Companies will spend** billions in 2004 to comply with industry rules, self-imposed policies and laws enacted by federal and state governments. In today's regulatory climate, compliance spending has become another cost of doing business.

And it's a cost that's on the

rise. Take Sarbanes-Oxley: According to AMR Research, companies will spend \$5.5 billion in 2004 to

meet Sarbox requirements mandated by the federal government for public companies—specifically, requirements related to Section 404, which stipulates how public companies must disclose their financial

information. Of that total, nearly \$1 billion will be spent on IT, opportuniting CIOs to take a leading role in compliance discussions that cover Section 404. And compliance is only going to become a bigger issue for CIOs as Congress passes more legislation governing corporate practices.

In a recent AMR survey, 60 of the 69 companies polled said that IT-related spending on compliance issues would increase in 2005. "People

thought that [compliance spending] was going to be here today and gone next year," says John Hagerty, vice president of research at AMR. "In fact, compliance spending is going to be growing."

AMR Research expects IT compliance budgets to rise 10 percent in 2005.

## 2004 Compliance Spending

More than one-third of enterprises underestimated compliance costs...

**43%** met their budgets

**35%** spent more than planned

**21%** spent less than planned

## 2005 Compliance Spending

...but they will try not to make the same mistake again

**68%** will increase compliance budgets

**19%** plan on maintaining current budgets

**13%** expect to decrease compliance budgets



## Best Practices

**Take a holistic approach:** AMR Research says the companies that unite diverse requirements—including financial, operational and IT needs—to meet the goals of compliance will benefit the most.

**Know who, what and how:** Identify which internal and external constituents play key roles in any directive (who). Determine the major functional capabilities required to address compliance regulations (what). Prepare the IT infrastructure and supporting services required to sustain these roles and capabilities (how).

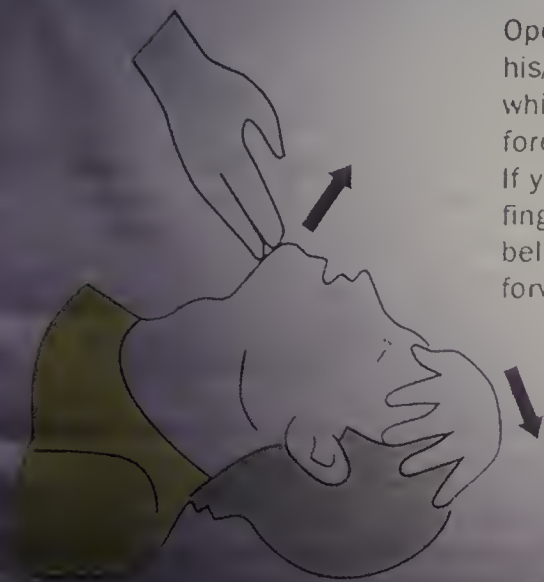
**Plan in order to mitigate costs:** Lax enforcement of federal regulations could lead to financial penalties as well as market repercussions, such as reduced stock price or increased cost of capital. By putting time and effort into planning, companies may save money and effort down the line.

**Put governance and risk management first:** Compliance won't work well without clear governance (oversight) and strong risk management practices.

SOURCE: AMR Research



## ③ OPEN THE VICTIM'S AIRWAY



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## INFRASTRUCTURE

## A Real Green Field

The CIO of a new college starts from scratch



**RICH KOGUT, CIO**  
University of California,  
Merced, is building IT  
systems at a new  
campus in central  
California grasslands  
(pictured below).

**Imagine a green field** just waiting to grow an IT operation capable of supporting 1,000 college students, staff and faculty. You and your team need to set standards and design the systems necessary to make the new school a model research university.

But the pastoral must give way to the practical. We are talking about a real field of 105 acres of grasslands where construction started last November. So, you don't have many buildings yet. And this is California, land of budget constraints. Oh, and by the way, it all needs to happen before the start of the fall 2005 semester, when those 1,000 students descend upon the campus. Your IT choices now must support projected growth of 900 students per year for the next 30 years.

Any CIO might imagine it, but Rich Kogut is living it.

Kogut is the CIO at the currently under-construction University of California, Merced campus in Merced, Calif. Kogut, whose background includes IT leadership stints at both

Georgetown and Brown universities, says the Merced job "is the chance of a lifetime to build a research university." Still, Kogut says he went into the project with his eyes open, knowing that there would be spending limits. (Merced's \$20 million from the state budget for the 2004-2005 year includes a one-time \$10 million startup investment. The David and Lucile Packard Foundation donated approximately \$11 million to help establish the university.)

Besides sticking to a budget, and the need to link to University of California systems and to follow public bidding rules, he has few limits on his specific IT choices. Yet there's a lot riding on each one. As Kogut says: "The good news is we have no legacy, and the bad news is we have no legacy. We have no safety net."

If a system goes down—say, for voice over IP—there would be no falling back to plain old telephone service, as none would exist (a fact that forces Kogut to be very careful about the technologies he chooses). To that end, he's constantly

looking for partnerships with vendors—such as Sun Microsystems, which won an RFP to provide directory and messaging services for the school—all while still staying within the required competitive bidding framework. Cost-conscious and flexible open-source projects also figure prominently in his thinking.

There are other hurdles too. For instance, "We have the only truly wire-less campus, and I say that because we have no wires," he says, only half jokingly. But the wires are going in as the buildings go higher. And a slow-open schedule that starts with a single biology course taught locally on a leased campus this summer will help Kogut and his group test systems before the first full-time students arrive.

For now, Kogut says, "We're playing with deadlines, very small resources and just trying to get in the pieces of technology we need. We can't afford to do a lot, but we want to do it cleanly so we can build on it."

—Christopher Lindquist

## INTERNET CRIME

## G-Men Try to Slam Spam

**Face it:** Spam stinks and it ain't going away—at least not in the near future. But there are small yet important efforts under way to bring spammers to justice. One of these is Project Slam-Spam, a public-private effort among the FBI, other government agencies and the Direct Marketing Association, which contributed \$500,000 to help fund the venture.

The aim of Slam-Spam is to track spammers and bring them to justice under the Can-Spam Act, which went into effect earlier this year and criminalizes the most offensive forms of spam (such as unmarked sexually oriented material). To nab spammers, two teams of analysts were created, says Dan Larkin, chief of the FBI's Internet Crime Complaint Center, which is coordinating Slam-Spam. One of the teams is focusing on criminal scams, the other on the technical aspects of spamming, such as how the bad guys are reconfiguring routers and beating filters.



**DAN LARKIN**, chief  
of FBI Internet Crime  
Complaint Center

Slam-Spam, which began last fall, is the first project to arise from the formation of the National Cyber-Forensics & Training Alliance. The alliance brings together law enforcement, academia and private-industry representatives with a goal of identifying cybercrimes and collaborating on spam-fighting best practices.

Larkin and his colleagues initiate spam cases, then forward them to cyber task forces, field offices, and U.S. attorney's offices for further investigation and prosecution. As of May, the initiative had—among its accomplishments—identified more than 100 significant spammers.

Given the enormity of the problem, does Larkin think Slam-Spam will deter spammers? "Once the bad guys believe they will be prosecuted and that there's a dedicated team out there that is aimed at developing the trail and tracking it, I think it will," he says.

—Todd Datz



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## E-MAIL PRIVACY

# Courts Give E-Mail Snooping the OK

When it comes to e-mail, not every message is safe from prying

eyes. According to a recent ruling by the U.S. Court of Appeals for the First Circuit, ISPs can't be charged with violating federal wiretapping laws for snooping on e-mail sent to their customers. Privacy advocates say the decision will give ISPs and other e-mail providers free rein to spy on e-mail.

The appeals court ruling upholds a similar ruling by a lower court that dismissed a criminal wiretap charge against Bradford C. Councilman, a former vice president at Interloc, a rare book listing service. Interloc, since acquired by another company, provided an e-mail service to its book dealer customers; in January 1998, Councilman

asked employees to write a computer code that could intercept and copy customers' incoming e-mail messages from rival book dealer Amazon.com.

Councilman was charged with violating the U.S. Wiretap Act, which prohibits the interception of communications. But appeals court Judge Juan R. Torruella wrote that U.S. law doesn't prohibit ISPs and other e-mail providers from reading e-mail residing on their servers. The Wiretap Act gives wire and oral communication more protection than it does for electronic communication, Torruella added.

Privacy advocates, including the Center for Democracy and Technology (CDT), questioned the appeals court ruling. By ruling that an e-mail was in storage (not in transit) when it stopped for a "millisecond" on Interloc's servers, the appeals court has opened the doors for law enforcement as well as ISPs to spy on e-mail, according to Lara Flint, staff counsel for the CDT.

"We think it's a very strained interpretation of the law," Flint says of the ruling. "I think people understand that their employer has the right to read their work e-mail, but I don't think people have the concept that their personal e-mail is susceptible to being read and used by their ISPs...without their consent."

But Councilman's lawyer Andrew Good says the decision was the right one given that Congress provides less protection for stored electronic communication than it does for other forms of communication. Congress may want to change the law, but Councilman didn't break any existing law, according to Good of the law firm Good & Cormier. Under current law, e-mail users shouldn't expect privacy, and current law doesn't distinguish between an e-mail service provided by an employer or an ISP, Good adds. "Everybody knows, I think, that when you use an e-mail service provider from an employer, a school or an ISP, they have access to your e-mail and don't need your permission," Good says.

—Grant Gross

## THE CIO 100

## A Profile in Agility

When Greg Meyer helped launch CIO 100 honoree iJET Travel Risk Management in 1999, the idea was to provide travel-related risk management services, such as alerts to travel agencies. Then 9/11 happened, and Meyer, currently iJET CTO, says the company wanted to shift its focus—and do so fast. "On 9/11, we changed our business processes in two and a half hours," Meyer says. Instead of travel agents, the company targeted multinational corporations that sent employees abroad on business travel. New services included the ability for companies to track and communicate with traveling employees.

Demonstrating further agility, when the war in Iraq officially ended, iJET once again

responded promptly. The latest iteration of the company provides "high-risk, high-threat, on-the-ground information to address a specific mission or situation," says Meyer. Included in iJET's current mission are services—medical assistance, for example—geared toward government agencies and multinational corporations that send workers to places rife with civil unrest.

The ability to change on a dime, says Meyer, has been made possible by an IT platform that has "an agile, plug-in architecture," including a geographic information system that gives iJET customers multiple layers of real-time risk information, accessible through a global map interface. And by risk, there's more than just geopolitical events and terrorism. Many of iJET's nearly 400 customers have assets such as stores, branch

offices, factories and personnel in areas prone to earthquakes. In the event of an earthquake, iJET can deliver information via a number of customer interfaces that outlines where corporate assets are in relation to the earthquake, and that can include eyewitness accounts of damage.

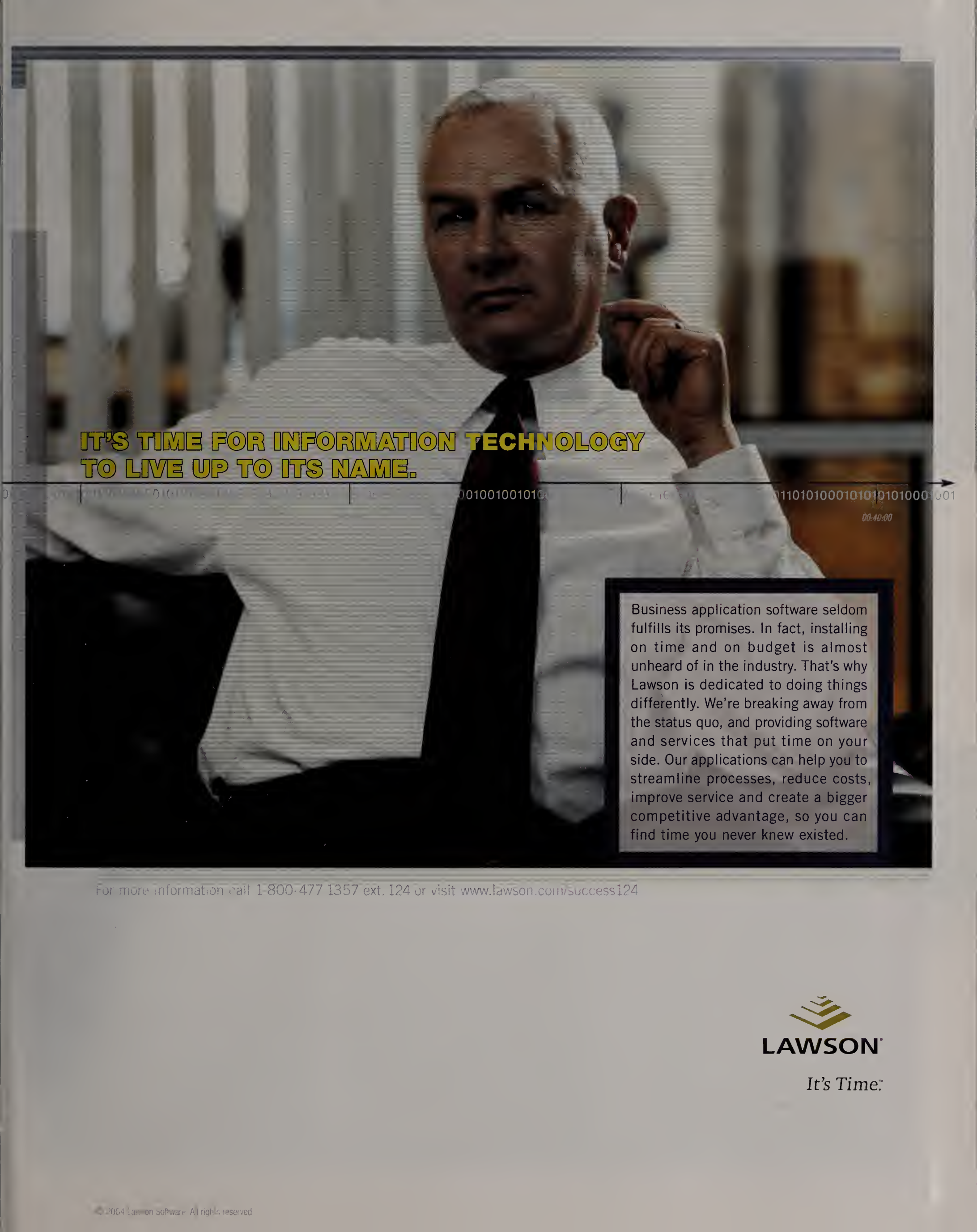
Unless the world stops changing, iJET is likely to continue reinventing itself. By building a platform that enables the company to implement new technology quickly, Meyer believes iJET can adapt yet again on a moment's notice.

—Megan Santosus



GREG MEYER, CTO iJET





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# Washington Watch

Edited by Elana Varon

## Consumer Credit Law Targets Identity Theft

Companies must destroy credit report data after use

**The Fair and Accurate Credit Transactions (FACT) Act** was signed into law in December 2003. For CIOs, it's just the latest in a long line of laws that dictate how they manage their companies' data—in this case information taken from consumer credit reports.

The FACT Act, sponsored by Rep. Spencer Bachus (R-Ala.), amends the Fair Credit Reporting Act (which was enacted in 1970 to provide privacy and accuracy assurances to consumers concerning their credit history). FACT includes provisions aimed at reducing identity theft—a crime that affected nearly 10 million Americans last year, according to the Federal Trade Commission.

While most of the provisions—such as a clause that entitles consumers to a free credit report annually—apply to financial services companies or credit bureaus, other provisions regarding the data derived from credit reports apply to every company that uses them, says Robert Belair, a privacy lawyer with Oldaker, Biden & Belair. For example, car dealerships use credit reports to determine if a customer qualifies for credit. But FACT restricts the use of information from credit reports for marketing purposes. The car buyer's credit information, pulled by the

dealership's finance company to approve his car loan, could not be used by an affiliated company to target him with a promotion for a credit card without the customer's permission.

For their part, CIOs need to make sure that credit report information is protected and not combined with any other information that might be used in promotions. Furthermore, according to the law, all electronic records created with information from credit reports have to be destroyed after use in a way that renders them "unrecoverable."

CIOs need to be aware of which systems house that information, says Belair, because they "need to have a plan for securing and then destroying those records." Unfortunately, the FTC, which will enforce FACT, doesn't define what "unrecoverable" means in its enforcement regulations. As is the case with so many federal regulations, CIOs will have to figure out what to do on their own.

—Ben Worthen



Rep. SPENCER BACHUS (R-Ala.)



TIMOTHY MURIS  
FTC Chairman

## ISPs Must Stop Spam, Says FTC Report

But the prospect of federal rules looms if vendors don't deliver

### The Federal Trade

Commission has given ISPs responsibility for develop-

ing standards to authenticate senders of e-mail—a step that must happen before a national "do not e-mail" registry is feasible. The agency says it will give technology companies time and encouragement to develop such standards, but it adds that federally mandated standards are possible if the industry doesn't eventually deliver.

Under the Can-Spam Act, which Congress passed last year and which outlawed

some common spamming techniques, the FTC was required to report on the feasibility of a national "do not e-mail" list modeled on its Do Not Call Registry for telemarketers. The agency reported in June that an e-mail list wouldn't help solve the problem because it would be used by spammers to verify working e-mail addresses and to send more spam. FTC Chairman Timothy Muris argues that most spammers operate underground and are not afraid to break laws, unlike most telemarketers.

Authentication would help stop spam

because it would enable e-mail servers to verify if a given message comes from an approved source and reject it if it doesn't. Common spamming techniques—such as spoofing—hide the identities of spammers, according to the FTC report.

Microsoft and other major ISPs have begun work on such authentication standards. "The government can get in the way," says Dan Salsburg, assistant director for marketing practices at the FTC. "We want to make sure that private industry has a chance to solve this, but we're not going to sit back and watch if it doesn't happen."

—Grant Gross

### Learn More

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#### EXECUTIVE SUMMARY

This report is designed to help organizations understand the potential of Integration Competency Centers (ICCs) and how they can be used to turn ad hoc integration requirements into a strategic advantage. Read this briefing to learn:

- >>How a Universal Data Services architecture is the foundation of an ICC;
- >>The benefits that Integration Competency Centers can bring to organizations;
- >>Ways organizations can streamline their integration challenges by developing an ICC;
- >>How investment management firm T. Rowe Price successfully deployed its ICC.

# The Value of an ICC

## Integration Competency Centers Reduce Complexity and Costs of Enterprise Systems, Processes and People

In the space of a few years in the early 1900s, Ford Motor Company went from making custom automobiles to turning out Model Ts at the rate of almost two million a year. While the assembly line was the enabling technology for this remarkable feat, just as important to Ford's success were the processes, best practices and people behind the assembly line.

Amazingly, some of the same approaches that Ford used to dominate the auto industry enable today's companies to gain control over something completely different—the increasingly complex challenge of enterprise integration. Just as the early years of auto manufacturing evolved from custom jobs to assembly lines, the problem of integration has evolved from one-

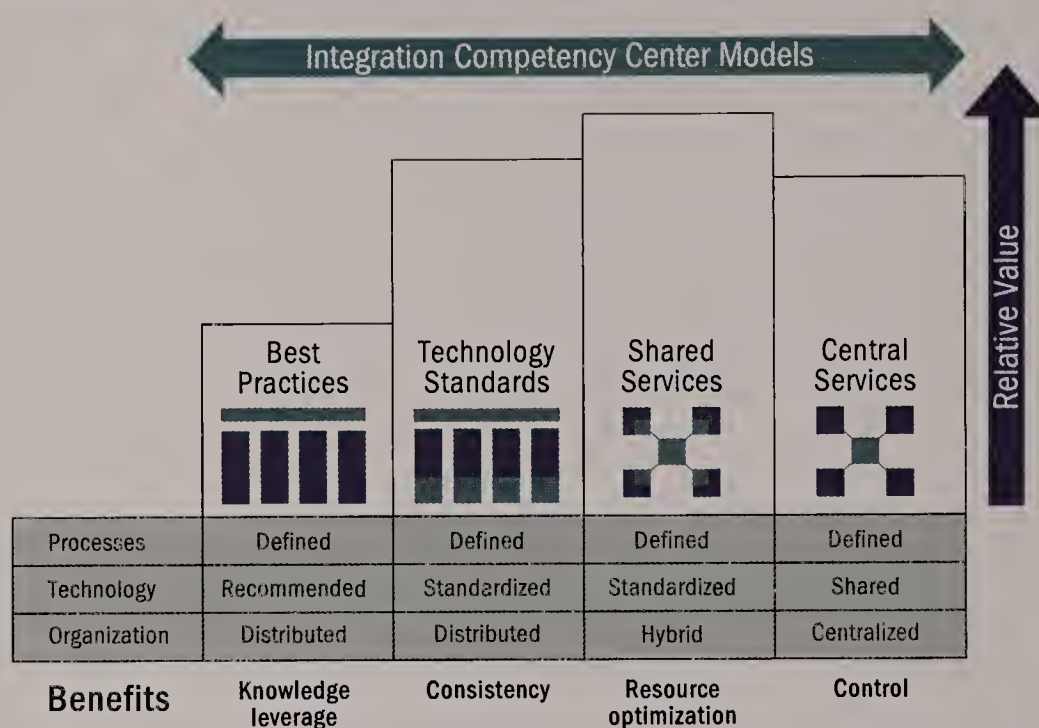
off projects to the repeatable, sustainable structure of an Integration Competency Center (ICC). Integration Competency Centers allow forward-looking organizations to apply the same attention to processes, best practices and people that Ford did to his assembly line, and turn a jumble of ad hoc integration projects into a coordinated, efficient and timely inte-

gration strategy. An ICC is a shared IT resource that provides the best practices, skills, processes and technologies necessary to complete multiple data integration projects rapidly and cost-efficiently.

Creating a successful ICC requires a strong balance of people, processes and technologies, as well as the right underlying architecture. For Ford, the perfect architecture was the assembly line, which allowed automakers to streamline and control the assembly of their cars. Many organizations today are turning to service-oriented architectures (SOA) as a necessary approach for total data integration. The right architecture for an ICC is centered around a set of universal data services (UDS) that delivers a consistent approach to defining and accessing data sources—no matter how heterogeneous—in an industry-standard



## Implemented Styles of ICC



Various models of ICC deployment—providing a uniform approach across data integration initiatives.

way. UDS enable organizations to strategically streamline their data integration architecture while enabling future flexibility and adaptability. Done right, an ICC approach, based on a UDS architecture, can be used to turn ad hoc integration requirements into a strategic business advantage.

## Building an Efficient and Effective Integration Strategy

For many companies, ad hoc integration solutions and hand coding have resulted in a “hairball” of interconnections between systems that are difficult to manage efficiently and almost impossible to leverage strategically. Purely technological approaches, such as enterprise application integration (EAI) packages, have typically only served to accelerate the growth of the hairball when used on a project basis, without addressing the issues of process, people and standardization.

“It’s not all about technology—it’s usually more about people, processes and the right architecture,” says David Lyle, vice president of product strategy at

Informatica. “For most companies, it’s an organizational, not a technological, issue.”

The ICC approach offers the opportunity for organizations to move from hand coding and brittle point-to-point integration to the scalable production and flexible management of multiple integration initiatives, without requiring a corresponding investment in personnel, which results in cost savings. While competency centers may be new to some companies, they represent a proven approach that helps organizations to efficiently and effectively meet new integration and business challenges without having to re-invent the wheel each time.

For example, one major Fortune 500 company had financial data stored in 20 different mainframe systems around the globe, with 11 different data mart projects for various lines of business. Although much of the source data needed for the data marts was similar, the company’s decentralized development efforts prevented reuse across teams and resulted in redundant data integration functionality.

The company’s problem is typical. Despite a myriad of new technologies and products, organizations continue to find themselves creating unnecessary complexity

and adding costs by resorting to piecemeal data integration approaches. Responding in a timely manner to new business requirements and opportunities requires the ability to easily integrate new applications with existing corporate data sources and enabling the rapid reuse of data. Yet most organizations are hobbled with inconsistent data integration approaches and tools that provide tactical answers at the expense of strategic solutions.

While specific technologies or products are indispensable in building a strategic solution, they’re not the answer. Instead, the real answer lies in the people and processes.

## Integration Competency Centers—How and Why

While the phrase “Integration Competency Center” has a formal ring to it, it’s not as all encompassing as it sounds. In reality, an Integration Competency Center doesn’t have to be big. You want to set realistic expectations for it and have pragmatic goals in mind when establishing an ICC. For example, a typical business intelligence or data warehousing competency center might have a team of five or six people.

In short, an ICC is typically a shared, centralized resource that defines uniform approaches to integration with reusable assets. There are a variety of ways to set up an ICC—from simply defining a series of best practices to specifying specific tools or architectures that must be used, to providing centralized developers and architects that can actually create and manage integrations. What’s right for your company depends on such things as the corporate structure (centralized or decentralized), frequency of projects, your level of standardization and your IT infrastructure.

An ICC frequently sets integration standards for the corporation, including open standards or the selection of specific products. In either case, standards can increase reuse, lower costs and provide more flexible allocation of IT personnel across projects. The ICC model also

### Increased Scale

The combination of technology and architectural standards, best practices for design and implementation, and a library of reusable components make an ICC approach inherently more scalable than one-off, point-to-point integrations.

### Holistic View

The ICC model also decreases the time-to-market for new applications, data warehouse updates or reporting changes needed by the business, since it can provide a holistic view of enterprise data. Without a competency center, the data in most companies is locked into stovepiped resources, with no consistent access mechanism. An

ICC can change all that by providing unified access to corporate data. Not only does the reservoir of pre-tested and standardized services make modification or creation of new data movement solutions faster and more efficient, but the standardized processes supplied by the competency center can reduce time-to-market and improve the consistency and quality of the completed solution. For business users and managers, that translates into better information, more quickly.

### Business Value

Through a competency center, the IT group can provide business users more timely data as well as a better understand-

ing of what data is available and how to access it. "Integration competency centers provide the platform for the business users to use and integrate business data more efficiently," says Joshua Greenbaum, principal of Enterprise Applications Consulting. "The business side has always had a problem conceptualizing what they have. Now integration competency centers let them look at it in a more logical and strategic fashion." Some companies even find that an ICC can help redraw the way that technology supports the business.

## Four ICC Models

Building an ICC doesn't have to be a mon-

## Case Study: T. Rowe Price ICC Investment Pays Off With Improved Business Value

**Like many enterprise organizations,** after years of growth and expansion, Baltimore-based investment management firm T. Rowe Price found itself managing many disparate data sources and integration efforts without a consistent process. To solve the problem, T. Rowe Price chose an ICC approach.

"We wanted to make sure we had all the tools in place to handle our business challenges," says Gary Reicher, VP Database Services and Architecture. Starting with an Individual Investor Data Management project in 2002 to provide world-class service, the company created a competency center to handle data integration across its data warehouse environments. Currently, T. Rowe Price has 15 projects using the competency center with ETL software such as Informatica PowerCenter® and Data Quality tools from First Logic. Key to the success of those projects was the creation of T. Rowe Price's ICC.

To make sure they did it right, T. Rowe Price leaders took three months up front (before initiating new projects) to make sure they put the best practices,

processes and infrastructure in place—an investment of time and effort that they consider crucial to the overall success of the competency center. T. Rowe Price looked to Informatica for advice on everything from naming conventions and standards to setting up the metadata repository to capture the appropriate information. "The first thing we did was to partner with Informatica," says Reicher. "They helped us put together a framework and structure for how we could handle things like change management and best practices for design, as well as how to create an infrastructure that could handle multiple projects concurrently—that was really important to us."

T. Rowe Price's ICC, which has been in production for more than a year, is an example of the shared services approach, since it has two full-time staffers that are available to assist developers. The center has two main focuses: supporting a growing library of ETL code and scripts for new projects, as well as educating development teams on shared integration objects (such as sources or targets).

For T. Rowe Price, an added bonus of the competency center was that it allowed the IT group to sell the concept of "data stewardship" to the business managers. This was sold at the senior executive level of each business line by Mike Goff, CTO and Managing



umental endeavor. Instead, most organizations find themselves creating one by progressing through a series of steps, adding new processes, skills and technologies to support the competency center as needed. In fact, research conducted by Informatica consistently identified four main models of an ICC, with the appropriate one determined by individual company requirements:

#### **Best Practices**

Best practices provide a basic way to share integration knowledge across projects and teams. They can be collected in a variety of formats, such as

documents, portals or even as a set of human resources or experts. With a best practices approach, organizations may still have individual teams creating integration solutions, but in a consistent way. Sample integration best practices might include which tools to use, how to configure them, or the best way to integrate with certain data sources.

#### **Technology Standards**

Even with individual teams tackling different integration projects, sharing the same tool set and environment can enable more collaboration and reuse. Sharing the tools and technology

standards makes development and maintenance more synergistic and allows everyone to share the same terminology and structure.

#### **Shared Services**

This approach calls for a shared services team that is responsible for the definition of the appropriate processes, naming conventions and setting up the shared environment or integration tool sets. They act as a central resource to help individual development teams design and implement their integration projects and ensure that they're meeting the defined standards and using the appropriate architecture and tools.

*continued on page 6*

Director of T. Rowe Price Investment Technologies. In the past, data consistency had been a big problem, with multiple definitions of data spread across the company. "We were able to convince the business users that the Informatica software

uate how the competency center might help. "In the past six months, we've been able to win a lot of those projects," says Reicher. "In addition, another big advantage for them is that it's much easier to do impact analysis as they make



"The benefits have been straightforward—we've reduced maintenance requirements and cost, improved the consistency of development, and increased data quality while giving business users ownership of the data."

—Gary Reicher, T. Rowe Price

suite could help them do their analysis while keeping the data consistent within the company," says Reicher.

According to Reicher, "The foundation for success of the competency center was the current organizational structure (Centers of Excellences) spearheaded by Mike Goff a few years ago, which enabled our team to succeed in the creation of our competency center." This gave our team the incentive to partner with different development groups and analyze their strategic projects to eval-

changes in the future."

So far, the T. Rowe Price integration competency center has proved to be a success. "The benefits have been straightforward—we've reduced maintenance requirements and cost, improved the consistency of development and increased data quality while giving business users ownership of the data," says Reicher. "Having PowerCenter has allowed us to really explain how data is being used and see how things can be done better in the future."

# UDS Defined

## Universal Data Services is Fundamental to ICC Strategy

**While an ICC helps organizations** tame integration complexity by putting the spotlight on people and processes, it's also important to consider the architecture of the data services that will form the foundation of the competency center. In fact, for many organizations, the demand for a new architectural approach, one that provides a ubiquitous integration layer across the entire enterprise architecture and supports the dynamic assembly of data services, is fast becoming a requirement for keeping pace with growing data demands and infrastructure complexity.

As a result, many organizations are turning to service-oriented architectures (SOA) as a necessary approach for total data integration. Using a service-oriented architecture as a basis for data services provides IT with a way to extend the enterprise's interaction with data and take advantage of existing EAI, EII, ETL and BI approaches through a unified set of shared services called universal data services (UDS). UDS provides a consistent and unified approach to data interaction through data-centric, unified services.

"Universal Data Services (UDS) from Informatica is one example of sound integration architecture, and it can serve as a valuable resource for information location and relevance," notes Eric Austvold, research director at AMR, in "Integration Competency Centers: Cutting Millions Out of Integration Projects," July 2004. "Informatica's consistent methodology is designed to help reduce the pain of integration and complements other integration technology. Because UDS serves as a library of reuse, it promises to save money and integration resources."

Universal Data Services enables more than just leveraging existing resources—it also helps IT to innovate and deliver new solutions for integrating business data in ways that were previously very difficult. Universal Data Services delivers rapid development and deployment leveraged across initiatives, increasing responsiveness to business demands with a "design once, deploy anywhere" approach. It also provides increased data confidence by offering a uniform way for interacting with enterprise data.

"The idea of UDS is to pull your different individual data movement, transformation and integration functions into a single architecture that can then be accessed via Web Services," says Joshua Greenbaum, principal of Enterprise Applications Consulting. "It's a way to leverage the use of data services across the enterprise to become more efficient. By structuring them as services, you can increase their use at a relatively low cost to the IT department."

provides a way to define appropriate (and consistent) architectures for integration. For example, the architecture defined by a competency center might be something as simple as a data relationship design or the requirement for developers to use established integration hubs instead of point-to-point interfaces.

"With an architectural design applied consistently, employees need less training and learn how to do each other's work easily. Consequently, managers have more options assigning personnel to projects," notes Philip Russom, principal analyst, Forrester Research, in Forrester's March 2004 Best Practice Report, "Successful Data Integration Requires Architecture."

"With consistent architecture comes consistent use of integration tools, so developers can reuse objects and interfaces created in these tools across multiple projects and versions of projects."

In many cases, creating an integration competency center may require more planning and investment compared to the initial cost of hand-coding data integrations or using a series of ad hoc point-to-point integrations, but that's not the whole story. When used for more than one project, an ICC can deliver huge benefits to both the IT and business side of an organization. Among the benefits:

### Better Reusability

One of the key benefits of an ICC is its ability to increase the amount of reuse for integration and data services. For example, an organization using multiple data integration tools can't reuse integration objects across projects, while if the organization standardized on a specific tool, the integration objects could easily be reused across projects. Greater reuse leads to development and maintenance cost reductions—though many organizations will invest the savings back into the competency center to fund more projects.

*continued on page 4*



# Forces of Change Business, Technology and Legislation Drive Adoption of ICC Models

Although the ICC concept is straightforward, and other types of competency centers (also called Centers of Excellence) have been around for years, the ICC approach has suddenly become hot.

"Though competency centers have been around for years (for areas in IT like databases, data warehousing, and application development), a more recent phenomenon is the type devoted specifically to integration," writes Philip Russom, principal analyst, Forrester Research, in Forrester's June 2004 Best Practice Report "Selecting A Corporate-Standard ETL Tool," "One of the many tasks of the integration competency center (ICC) is to select corporate-standard integration tools of various types (like EAI, BPI, EII, ETL, etc.)."

Organizations create integration competency centers for a variety of reasons, although some key driving forces stand out:

## Central Services

The central services model takes the shared services approach one step further by staffing the ICC with developers and resources for actually implementing and maintaining specific integration components and projects. In effect, it brings the development that was being done in the individual departments in the shared services model into the competency center. One of the additional benefits of this approach is that the competency center is able to rigorously enforce standards and processes to ensure more consistency and greater reusability.

## Conclusion

An ICC approach provides organizations with a practical architecture for efficiently tackling data integration at the enterprise

level, rather than at the departmental level. Just as Ford changed the way that businesses manufactured items through the use of technology (the assembly line) and attention to the people, processes and best practices that supported it, today's enterprises can dramatically improve the success and reduce the cost of integration projects by combining integration technologies with best practices, standardization and the strategic resources of an ICC.

In addition, using a UDS architecture as the foundation for ICCs reduces complexity across systems, processes and resources, providing an agile and adaptable structure for building data-centric processes, such as data migration, synchronization, warehousing and business activity monitoring.

In fact, for many organizations, taking a first step toward an ICC is as straight-

**Ad hoc EAI:** While enterprise application integration (EAI) products can be part of an ICC, the proliferation in some companies of one-off integration solutions across different departments (often based on different EAI products) has caused some organizations to look for a more strategic process for integration. "In many cases, companies are rallying around the best practices or central services aspects of ICC models as their best solution for getting their arms around the integration issue," says David Lyle, vice president of product strategy, Informatica.

**Regulation:** For some companies, the drivers have been new regulatory requirements such as Sarbanes-Oxley and Basel 2. In these situations, the ICC approach helps by reducing redundant data access, transformation and integration processes, making data and processes more consistent and easier to audit.

**Mergers and Acquisitions:** As might be expected, mergers and acquisitions are another big driver for ICC strategies, since the centers enable the IT organization to define standard ways to integrate data from newly acquired systems. This reduces the amount of time required to merge an acquired company's IT assets and business information while increasing the consistency and quality of the integration.

forward as starting to collect common integration best practices or defining baseline technology standards. By focusing on the process of integration, instead of just the technologies, business and IT leaders can start to turn tactical integration requirements into strategic vision.

To learn more about Universal Data Services and for your Integration Competency Center kit, please visit [www.informatica.com/icckit](http://www.informatica.com/icckit).

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# Patricia Wallington | Total Leadership

## Agility in Adversity

How you can handle a crisis with a clear head  
and a can-do approach

**CLARE BOOTHE LUCE**, writer, editor, diplomat and wife of *Time* magazine founder Henry Luce, once said, “There are no hopeless situations; there are only men who have grown helpless about them.” Learning to deal with adversity in your company, your career and your life is an essential element of effective leadership.

Many times you succeed not by what you do when things are going well, but by what you do when they are not. Just as an agile company more easily retains its competitive edge, strong, agile leaders have a knack for turning problems into opportunities and for bouncing back from adversity.

I once had a job with a division of an oil company, which had assigned me to manage its regional technology operations in the Southwest. Less than a year after my move across country, the company divested this division. The next thing I knew I was working for the company’s exploration and production division. Here I was: a woman, a nonengineer and an Easterner to boot. Definitely not a prescription for success!

I could have moaned about the unfairness of life or quit and ran away, but instead I mourned my loss for about 30 seconds and then looked for opportunities. I ended up leading an



upgrade of the company’s scientific computing and data environment—to the delight of the geologists and engineers. This period turned out to be one of growth, during which I built relationships and expanded my knowledge of a challenging business. The experience enhanced my credentials as a leader.

### Crisis Mismanagement

It’s tempting to try to get out of a jam by whining, pointing fingers or covering up the problem. But such responses undermine your credibility and strength as a leader. Let’s take a look at some responses to adversity that you should avoid.

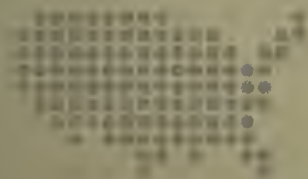
■ **The “It’s not fair” whine.** It may be comforting to wallow in self-pity, but whining about the unfairness of life is a waste of time. If, at this stage in life, you still harbor expectations of fairness then you must have led a charmed existence. Welcome to the real world! Failing to deal with what is while lamenting

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what you wish would be also sets a poor example. If your staff responds this way when faced with setbacks at their level, the organization's problem-solving muscles will atrophy.

■ **Faultfinding.** While knowing who is at fault in a crisis may be useful for coaching that individual to avoid future mishaps, finger-pointing distracts from the task of dealing with the problem. It will drive your staff to defend their actions rather than to focus on solutions, wasting vital energy. Faultfinding also has a deleterious effect in the long run, because people avoid risks in order to avoid the wrath of a blame-seeking leader.

■ **The cover-up.** Fear of the consequences of a mistake may tempt you to try to hide it, especially if you are culpable in any way. Recent headlines should dissuade you from taking this path. Burying a problem or ignoring it will likely make it worse. Other people will see your problem festering and question your lack of action. This will undermine your credibility.

The above responses aren't agile because they take the focus off the problem rather than lead to a quick resolution.

### Agility in Adversity

The better approach is to understand that despite your best efforts negative things will happen—and when they do, you need an agile response. An agile response will be speedy and action-oriented and will rally support from your organization for

**3. Tell.** Communicate with all constituencies, and tell as much as you are able to reveal. You have a responsibility to keep your people informed because their lives may be affected. Furthermore, without accurate information people will speculate—and reach conclusions that are usually much worse than the actual situation. Your demeanor should be one of calm control: If you seem panicked, you do not look strong.

As you communicate with your staff, accept accountability for your own errors. Years ago I learned from a study on upwardly mobile leaders that only the mediocre ones do not acknowledge their own mistakes. Honesty is the best policy because it engenders trust. People will deliver incredible performance for trusted leaders, and that performance is what will enable your recovery.

**4. Do.** Act with a laser-like focus. Make recovering from the crisis your top priority and do not be distracted by the bump in the road. The strengths that got you where you are today will help you drive to a result. Remember that persistence, resilience and courage to take on big risks will be key factors in your ability to withstand the ever-present crises.

**5. Review.** When the crisis is under control, review the lessons learned. Elements of your review should include how you could have seen the situation coming faster, how you can avoid it in the future and the effectiveness of your response. To ensure the review focuses on improvement, avoid the blame game. Otherwise, you lose the ability to get the level of candor that will fuel improvements to processes or operations.

I have used this agile approach to crisis management successfully many times. Whether I faced budget miscalculations that upset my organization's plans, abrupt business reversals that required cancellation of infrastructure projects or personal crises that demanded a reordering of my priorities, having an agile approach has helped me handle the adversities of life.

Whether your life is relatively smooth or a series of roller-coaster rides, it is comforting to know that you have a tried-and-true approach to dealing with adversity. With these steps to guide you, you can develop a grace under fire that will enable you to keep your cool and your perspective during the small excitements of corporate life as well as those devastating crises that may impose themselves on your company. Just remember that old homily: Leaders are like teabags. The longer they are in hot water, the stronger they get! **CIO**

Send your thoughts about this column to [leadership@cio.com](mailto:leadership@cio.com). Before retiring in 1999, Patricia Wallington was corporate vice president and CIO at Xerox. She is now president of CIO Associates in Sarasota, Fla.



## An agile response will be speedy, action-oriented and will rally support from your organization for what may involve significant change.

what may involve significant change. Having an agile crisis management process is a distinct advantage for you as a leader. It will enable you to zig and zag down the path to success.

Start with a positive attitude to inspire confidence within your organization. Then follow these five steps to recover from a crisis. You will emerge from adversity in a position of strength.

**1. See.** Perhaps the biggest contributor to dealing with a crisis successfully is to see it coming or at least acknowledge it when it arrives. Being quick to see clearly will get your recovery off to a fast start. Avoid putting on the blinders that will keep you in the dark about the mistakes—maybe yours—that generated the crisis.

**2. Think.** Analyze the problem and develop a plan of action. This is probably the easiest step for those of us in the technical field because we are accustomed to thinking about multiple, innovative solutions to problems. In a crisis, think aggressively to create several alternative paths of action. You will need to prepare a response because your organization will likely be affected even if the critical event is focused at the corporate level.





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# Michael Schrage | Making IT Work

It's All About the Execution

## The Struggle to Define Agility

Successful companies know there are times when agility is called for and times when it's not

**I RECENTLY MODERATED** a panel on “the agile enterprise” at MIT’s recent CIO Summit. Good fun. My CIO panelists were sharp, witty and articulate champions of agility. They each valued business impact over technical cleverness and all saw themselves as full partners in the task of defining their companies’ futures.

The catch? One CIO argued that greater agility demanded greater centralization; another insisted greater decentralization and delegation defined enterprise agility. A British CIO on my panel asserted that agility means ever-exquisite responsiveness to business needs; an American CIO declared that agile IT should inspire and enable greater business-unit agility. I kept waiting for someone to mutter, “Agility means never having to say you’re sorry.”

In other words, agility—like that other perennial business buzzword, *quality*—seems to mean something different to everyone. There are no “Six Sigma Agility” black belts yet. No doubt there will be when the consulting market is ripe. Yet, when the same word means different things to different people, confusion invariably dominates the discussion.

Whatever agility is supposed to mean, opposing it reeks of



objecting to mom, apple pie and quality enhancement. That said, a rigorous friendly chat about agility—accent on “rigorous”—might help the CIO community determine what definition makes sense for the enterprise. Poorly defined agility may be worse than no agility at all.

In the first and final analysis, agility is about timely and cost-effective implementation. Period. Planning is nice. Analysis is good. Governance is groovy. But agility means action. Agility implies both the capacity and capability to act. Now. Immediately. Real-time. That doesn’t mean the enterprise has to instantaneously act or react—only that it has the power to do so.

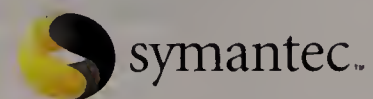
Agility without implementation is like finance without numbers; you might get the essential concepts right, but there is absolutely no way you can deliver business value without it. One might as well expect a sumo wrestler to win an Olympic Gold in the pole vault. Sumo wrestlers can, in fact, be quite

ILLUSTRATION BY BOB DALY



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agile. But it's not the agility you find flinging itself over a bar 18 feet high.

That's why I laugh—OK, I'm lying—that's why I smirk when companies with some of the more Teutonic ERP systems publicly proclaim their commitment to agility. I'm sorry, but have you ever tried to subtly—or profoundly—modify an ERP-enabled business process? I have. *Agile* is not the best word to describe those efforts. On the contrary, global ERP systems—you know who you are!—are explicitly designed not to be agile.

Their institutional strength comes not from flexibility, but rigidity; they're steel and glass, not bamboo. Have you noticed that there aren't many Fortune 1000 companies whose global headquarters are built from bamboo? If organizations truly wish to be more flexible, why do they invest so much in inflexible systems? Are they truly that naive? No. Clearly what matters is consistency and reliability as opposed to just-in-time

existing capacity? Or a new, clean-sheet innovation?"

We all know what the most common answer will be. Hint: It doesn't involve real innovation.

My concern about agility is that the business and IT communities talk about it as if it's more about architecture than about attitude. If only we have the right technical and business architectures, then we can be more responsive and anticipatory. As with most architectural aspirations, it looks good from the outside. In reality, how many architects design their buildings to be constantly modified, upgraded, altered, enhanced, improved, and changed for less time and less money? Read Stewart Brand's superb book, *How Buildings Learn: What Happens After They're Built*, for a brilliant exposition on why most architects and their buildings fail to deliver value.

Similarly, the reason why so many companies commit to ERP and enterprise computing is that they define agility as a function

of what C-level management has control over, not what line managers can control and influence. When we talk about agility, we must ask, "Agility for whom?"

To answer, "agility for the enterprise" is an act of Dilbert-esque weaseldom.

Whose enterprise? The CEO's? The

business line managers? That of the customer-touch folks? Or the people who work with the mission-critical suppliers? Or the customers? If we're championing agility for all of those constituencies, there's no architecture in the world robust enough.

Pragmatism matters. Agility exists in context. Agility for the CEO is not the same thing as agility for the supply chain executive or the call center manager. Refusing to define whose agility we wish to enhance is an act of cowardice.

Today's lust for agility is symptomatic of the deeper issue: Who is really responsible for responsiveness? The people who "lead" or the people who do the real work of the enterprise? Is agility a euphemism for recentralization or is it an honest bid to give more people more power to adapt their software and systems to reality? Either way, the call for agility is a call for a new economic science of implementation. In fact, it means talking about a marketplace of point solutions and ephemeral workarounds that change as soon as circumstance does. That's profound. You can't implement agility without agile implementations. That said, when agility means cutting corners and tweaking process rules, you can be sure there'll be a backlash brewing sometime soon. Today's agility is tomorrow's loss of control. What goes around, comes around. **CIO**

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PHOTO BY JOHN SOARES

## When we talk about agility, we have to ask, "Agility for whom?" Agility for the CEO is not the same thing as agility for the supply chain executive.

agility. Agility and consistency—flexibility and reliability—are never the best of business friends. They can't be. Organizations with ERP systems can't be agile around anything that involves modifying the ERP system.

Let me go further: One CIO's "agility" is another CIO's "workaround." You and I both know companies where IT and the business units have successfully collaborated to circumvent—I choose that word deliberately—software or system constraints to provide new features or functionality to customers. Their "agile" circumvention enabled new value creation. Is this how we want to define agility? You are called upon to be agile precisely because uncertainty, unreliability and exceptional circumstances materialize. In this instance, business agility means swiftly implementing the exception rather than the reliable rule.

As I listen to IT users who interact with both customers and members of the supply chain, I am struck by how often the subject of agility pops up more as a response to overcome technical limitations than as a vehicle to exploit existing system capacity. You have to admire the ingenuity of IT folks and their business counterparts to get added value from a system in spite of itself. Success comes from a creatively agile subversion.

So here's a CIO challenge: Look at the last 20 initiatives within your enterprise that you would define as agile. Make a list. Then, circulate the list among trusted subordinates and business colleagues whom you respect and ask them: "Which of these initiatives reflect a successful workaround of existing constraints? The logical exploitation and expansion of our

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THE 17TH ANNUAL  
CIO 100  
AWARDS



This year's honorees teach us how to marry IT agility with enterprise agility in order to move quickly, adapt intelligently and create advantage in a rapidly changing world

# The Agile 100

BY EDWARD PREWITT

CLOCKWISE FROM TOP:

Anthony Hill, CTO, Golden Gate University;  
Catherine Brune, CTO, Allstate Insurance; Judy Stahl, CIO, Harvard Business School;  
Dan Langham, CIO, Toshiba America Business Solutions

**SUDDENLY, AGILITY IS IN THE AIR.** In the cautious optimism of the postrecession, preboom economy, agility—the ability to adapt quickly to changing business conditions and take advantage of rapidly emerging opportunities—has become the *sine qua non* of organizational fitness. Conferences are devoted to it; technology advertising campaigns promise it; executives want it.

Why is agility so desirable at this particular moment in time? The future has always been, by definition, uncer-

tain, but right now it seems even more so. The recession is officially over, yet the expected rebound is still in the offing. Corporate profits are up slightly, but overall demand for goods and services—including technology—remains relatively flat. And then there's the anxiety that another terrorist attack, timed to coincide with the November elections, will knock the economy back into recession. In this iffy environment, organizations must be ready to turn on a dime—either to scale back or aggressively seize the moment.



In IT circles, agility has become associated with a flexible, component-based approach to software—agile programming, agile databases and agile modeling. But CIOs and IT departments must go beyond software development principles and practices to call themselves agile. “IT agility has a lot to do with the culture, with making sure that everyone from my position down to the entry levels understands what we need to do as a company,” says Ken Sidon, president of honoree company Antares Management Solutions.

“It comes down to the people rather than the technology.”

## What We Looked for in Our Honorees

For our 17th annual CIO 100 Awards, we selected 100 organizations wherein IT agility enables agility across the enterprise. Our Agile 100 honorees structure their IT costs so that spending can flex with fluctuating demand. They use elastic staffing and sourcing methods to align their people and resources with changing business needs. They employ agile project processes. They create technological agility by regularly testing new tools and developing their employees’ skills. The governance mechanisms of agile IT organizations are proactive. Most importantly, their IT agility

supports and sustains organizational agility.

Michael G. Williams, CIO of The New York Times Co., one of this year’s CIO 100 honorees, defines the link between the agility of the IT department and that of the enterprise as the implementation of “solutions that do not require a lot of time and really allow the business to take advantage of opportunity.” In practice, Williams says, agility is the apogee of CIO-CXO relations. “When a business [unit] owner comes to me with a need, I would like to be able to say, This is merely a configuration change, rather than saying, It’ll take nine months, and you’ll have to go to the board because it’s going to be a whopper. *That’s* agility,” he says.

Williams experienced this CIO nirvana during Super Bowl week last January, when The Times took advantage of the business opportunity created by the New England Patriots’ participation. Two weeks before the NFL title game in Houston, Williams huddled with business executives and printing staffers responsible for *The Boston Globe*, which is owned by The Times. They determined that it was possible to print extra copies of *The Globe* in Austin, Texas, where the company already had a business relationship with the local paper. Historically, complex newspaper layouts are very difficult to adapt to other

printing presses, but The Times’s service-oriented architecture made the process straightforward. The extra print jobs ran for six days before and after the Super Bowl. To distribute *The Globe* editions, The Times piggybacked on its preexisting delivery agreement with another newspaper in Houston and distributed them around the city, where Patriots fans in town for the game snapped them up. This display of IT and enterprise agility resulted in the sale of 180,000 extra copies of *The Globe*.

## Agility in Action

Agility was a specific part of the core strategy of 85 percent of the Agile 100 organizations, which represent 18 major private-sector industries, nonprofits and government agencies. They range from small startups, such as Via Training and iJET Travel Risk Management, to established giants, such as General Motors and the U.S. Government Accountability Office (formerly the General Accounting Office).

CIO 100 honorees manifest agility in a variety of ways. “Agility is in our governance, our project management, our vendor management and in the ways we set up funding,” says Marilyn Delmont, CIO of the city of Chandler, Ariz., which was one of three municipalities honored.

# HOW WE CHOSE THE AGILE 100

**THE THEME FOR THE CIO 100 AWARDS** changes each year to reflect an emerging and urgent business need. In recent years we’ve selected resourcefulness, innovation and integration. Choosing this year’s theme was easy; agility is the zeitgeist of 2004.

In the fall of 2003, we developed an online application asking organizations to identify several aspects of their IT agility and enterprise agility, and demonstrate a link between the two. We tapped a panel of IT management and agility experts (see “CIO 100 Panel of Experts,” Page 47) for insights in constructing the application. We then solicited applications through advertising, newsletters and e-mail. As the applications rolled in during the first two months of 2004, a panel of experts and our in-house editorial staff nominated

additional organizations distinguished by their agility. We invited these nominees to apply as well. The completed applications, which required substantial detail, exceeded 300.

Teams of CIO editors and writers made initial recommendations about each entrant. We debated the depth and breadth of their agility, the results achieved, and how the enterprise stacked up against the other applicants. Thus, the final 100 honorees for the 17th annual CIO 100 Awards embody the state of the art in anticipating change and implementing processes—in technology, in governance and in spirit—that enable a fast response to evolving conditions and allow these organizations to seize the day.

—E.P.



Delmont arrived in Chandler in early 2003 as the city's first CIO. Home to several growing high-tech companies, Chandler has experienced a population boom in recent years, and the municipal government has struggled to keep pace with the services it provided. City leaders weren't skimping on IT resources, but before Delmont was hired each city department bought and ran its own systems independently. The result was siloed systems, frequent outages and, consequently, painfully slow processes. Delmont focused on creating a strategic plan that included establishing an enterprise architecture, setting up a governance structure that involved the business side without giving them IT decision-making responsibility, and rolling out a project management office. As a result, when the city council asked earlier this year that geographic information system data be posted on the city's website, Delmont's group was able to get it done quickly. In fact, the team got it up in one week.

To see how another honoree, the federal Defense Logistics Agency (DLA), used IT to vastly improve its operations, see "Inside an Agile Transformation," Page 48. The agency that supplies all branches of the U.S. military historically was known for being slow and inefficient. But the DLA committed \$1 billion to an agility makeover that transformed how it approaches its mission and will return \$1.8 billion in savings.

## The Cost of Agility

One key to agility is having money to spend. With an average IT budget of \$269 million, the CIOs of the Agile 100 aren't hurting for cash. What's more, 56 percent of them were able to increase their IT budgets from the previous fiscal year. But 23 percent managed to create and maintain agility with decreased IT budgets, and another 17 percent with

# Highlights of the CIO 100 Honoree Survey

## THE WHYS AND WHY NOTS OF AGILITY

### Benefits to the Enterprise

In descending order

- Improved customer service levels
- Enhanced ability to take advantage of new revenue opportunities
- Lower costs
- Heightened ability to fend off competitors
- Faster time to market with new products

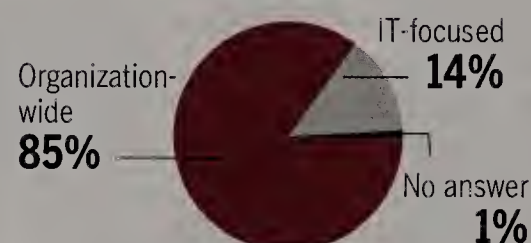
### The Challenges of Achieving Agility

In descending order

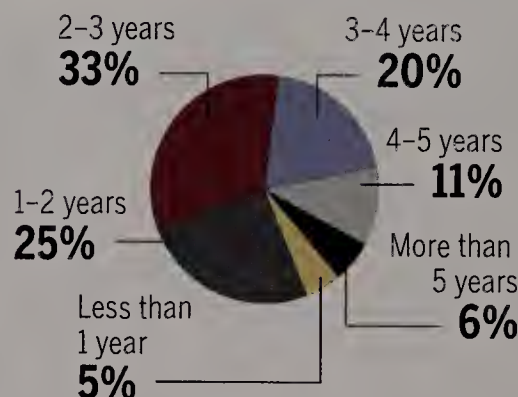
- High cost of new systems, processes
- Lack of necessary staff skill sets
- Disconnect between IT department and business units
- Legacy systems
- Poor project management
- Poor IT investment governance
- Lack of flexibility among IT vendors
- Bureaucracy

## AGILE PRACTICES

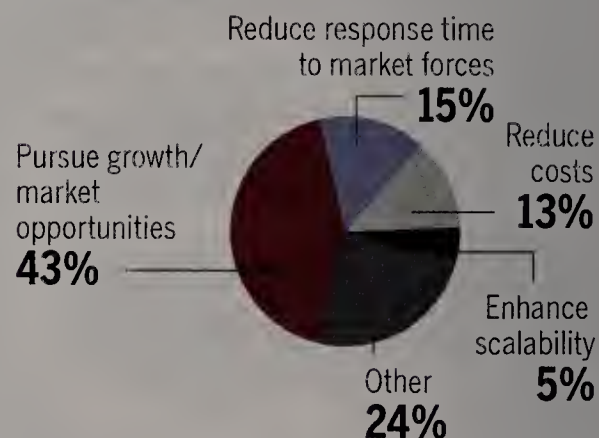
### The focus of honorees' agility initiatives



### Time it took honorees to build an agile IT department



### Drivers for pursuing agility as an enterprise



### Fixed versus flexible costs in honorees' IT budgets

Numbers in percentages

|                     | Fixed budget | Flexible budget |
|---------------------|--------------|-----------------|
| Overall IT costs    | 64           | 33              |
| IT staffing         | 64           | 32              |
| Software & hardware | 66           | 29              |
| Telecommunications  | 66           | 30              |
| Overhead            | 81           | 15              |

Note: Numbers do not add to 100% due to incomplete answers.

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flat funding, thereby demonstrating that agility can't be bought; it has to be earned. On average, the Agile 100 manage to keep a third of their IT budgets flexible, according to "The CIO 100 Honoree Survey." (Full results are online at [www2.cio.com/research](http://www2.cio.com/research).) That's a big percentage of annual IT spending devoted to new needs or opportunities. Honoree Merrill Lynch launched its "Cost Transparency Now!" initiative in 2002 to free up money that had been locked in to network, mainframe and security costs. The scheme, which was combined with a chargeback mechanism, delineated fixed and variable costs to show business units what they were spending and where they could save.

An obvious way to keep costs flexible is through outsourcing. And indeed, 91 percent of this year's honorees make use of outsourcing—both the domestic and offshore varieties. But that doesn't mean surrendering responsibility for IT to a third party. The Guardian Life Insurance Co. of America, for example, uses offshoring to address peaks and valleys in development needs, but its IT group maintains a minimum presence of 50 percent on each project. This approach is meant to ensure in-house control of projects and to avoid the loss of knowledge capital.

At the same time, Guardian emphasizes training for its in-house IT staff by setting up a project management training program, working with an e-learning vendor to create a customized course on the operating models and strategies of the business units, and sending staffers to boot camps for targeted technical skills. This continuous training approach aims to embed agility within all levels of the IT group, rather than leaving it to the managers.

## Technology for Agility's Sake

The agile use of technology is another characteristic of this year's CIO 100 honorees. Via Training, an online training company launched in 1999, uses open-source products to build its IT infrastructure and engineering hosting delivery applications. The savings Via Training reaped by using open source rather

than commercial equivalents in its initial investment approached \$1 million—the difference between success and failure in the startup period, says Vice President of Engineering Paul Irvine. Via Training continues to display technological agility by using XML

tomization for each language.

For details on building technological agility into your organization, read "How to Build an Agile IT Department," Page 58.

## Agility Constrained

Becoming agile isn't easy. The obstacles, according to our honorees, include: the eternal challenge of aligning business unit goals with IT department capabilities, the lack of necessary staff skills and (of course) inadequate, untouchable legacy systems. The biggest barrier, however, is simply the cost of installing new systems and processes. At least initially, the search for agility can require trade-offs. "There's a balance between short-term contracts for flexibility and the cost savings from long-term contracts," says Chandler's Delmont.

Once past these humps, however, the Agile 100 reaped benefits. IT departments attained a strategic partnership status with the business side by better aligning with business needs. For the organization as a whole, the advantages include: improved customer service levels, faster time to market with new products and a greater ability to take advantage of new revenue opportunities. Con-Way Transportation Services, for example, reused software components to launch a new business unit with an on-time rate of better than 98 percent—an industry high. UNICEF developed an emergency communications kit to link disaster areas around the world into its worldwide private IP network in less than three hours, thereby saving children's lives. Industrial distribution company W.W. Grainger's test of a custom inventory availability tool was so successful that sales staff used it close to 20,000 times during a one-month trial, netting \$182,000 in add-on sales.

Agility, then, boils down to being quick off the mark. And our 2004 CIO 100 honorees, having taken the lead, are already miles ahead. **CIO**

## CIO 100 Panel of Experts

Advisers who helped develop the CIO 100 Awards application and nominated organizations

### Rick Dove

Founder and Chairman  
Paradigm Shift International

### Jim Highsmith

Director, Agile Project  
Management Practice  
Cutter Consortium

### Nick Horney

President  
Agility Consulting & Training

### Howard Rubin

Executive Vice President  
Meta Group

### Rick Swanborg

President  
ICEX

### Peter Weill

Director, Center for Information  
Systems Management  
MIT Sloan School of Management

**Thanks also to** members of the CIO Editorial Advisory Board for their input into the development of the awards application. To find out who's on CIO's Board of Advisers, see Page 19.

and reusable code to lower development costs (and speed delivery) of its online training course modules. This approach allows courses to be translated into other languages easily, rather than necessitating an intense cus-

Senior Editor Edward Prewitt ([eprewitt@cio.com](mailto:eprewitt@cio.com)) coordinated this year's CIO 100 Awards and this issue.



**THINK YOU'VE GOT AGILITY CHALLENGES?** Consider the mission of the Defense Logistics Agency (DLA).

The DLA manages 4.6 million discrete products—from fruit and flak jackets to jet fuel and X-ray machines. The agency oversees \$83.2 billion worth of inventory and makes 8.7 million shipments annually to provide nearly every consumable item that the U.S. military needs during times of war, peace and everything in between. It's like a Wal-Mart for the armed forces—if Wal-Mart carried things like parts for missile launchers and steam turbines for warships, and regularly shipped them to hostile territories.

The Fort Belvoir, Va.-based agency has bought, sold, distributed and disposed of supplies of all types in every major conflict and contingency operation of the past four decades, from the Vietnam War to the current Operation Iraqi Freedom (OIF). The agility of the DLA in getting critical supplies to troops in the field is not a luxury; it can be a matter of life and death.

In the 1990s, in response to lessons learned from a logistics debacle in the first Gulf War and the changing demands of the DLA's most challenging customer, the modern soldier, the agency began a transformation. It streamlined operations to become a leaner, more flexible support organization for the military. "It became very clear that we had to become competitive. And for us to become competitive we had to be agile," explains Director of Supply Corps Vice Adm. Keith W. Lippert, U. S. Navy.

For the DLA, agility is measured in terms of getting the right

supplies to the right troops at the right place and time. Since streamlining its operations, there's been a dramatic reduction in back orders of weapons system hardware—from 450,000 in October 2001 to an all-time low of 280,000 this March. The DLA projects that back orders will drop to 275,000 by year's end and continue to decline in 2005. The number of back orders of more than 180 days has plummeted from nearly 100,000 in October 2001 to just over 40,000 this May. And in fiscal year 2004, the DLA says it will report its lowest cost recovery rate (operating costs as a percentage of total sales) ever of 15.5 percent, down from a high of 35 percent in 1992.

The DLA is delivering more efficient service with a streamlined staff and structure. The agency has reduced its staff, which bloated to more than 65,000 employees during Desert Storm, to 21,500—its smallest level since 1963. It centralized control of its 23 depots under one system at the Defense Distribution Center (DDC) in New Cumberland, Pa. Agency headquarters reengineered itself to form six integrated businesses organized around business processes—such as logistics, finance and HR—rather than 42 independent business and support staff offices. To date, the DLA has committed more than a billion dollars to its internal makeover, with the target of delivering \$1.8 billion in savings to the military.

At the heart of the DLA's more agile self is a more agile IT shop, working to centralize IT systems, introduce new tools such as

How centralized IT helps get supplies into the hands of our military around the world

# Inside an Agile Transformation

BY STEPHANIE OVERBY

PHOTOGRAPHY BY CAMERON DAVIDSON





To help the DLA become agile, CIO MAE DE VINCENTIS began by managing IT as a portfolio.



RFID tags to increase supply chain visibility, and align itself more closely both with internal users and external customers to better respond to their needs.

Given the scope of the DLA's mission, transforming the agency is an ongoing effort—one that has not been without challenges. But the DLA is moving in the right direction.

### A Mysterious Mountain of Metal

The DLA was created in 1961 as the Defense Supply Agency in an effort to change how the U.S. military bought and distributed goods. "Each of the services had their own supply areas and were competing among themselves for the same type of support," says Lippert. "The idea [of the DLA] was to bring all the common items into one area, buy them in larger quantities, get price discounts and not go through the nonsense of competing with each other."

But the DLA became just another rigid bureaucracy in the federal government. The DLA's headquarters acted like a holding company, with little control over its individual businesses, which included five inventory control points and more than 25 distribution depots.

Some centralized IT did exist—in the form of a lumbering legacy system implemented in the 1970s. But that system had been tailored over the years by the separate supply chain centers, resulting in disparate practices that were not cost-effective across the enterprise, did not optimize sources of supply and did not provide adequate forecasting capability. Forecasting was based on historical demand, which led the DLA to store large amounts of inventory in anticipation of customer buying patterns that were rarely accurate.

The net effect, says Lippert simply: "Our support of the warfighter wasn't good enough. It took too long to get material to the warfighter. And it cost way too much."

The DLA's problems crystallized during Operation Desert Storm. Although the agency provided \$3 billion in supplies in response to 2 million requisitions from August 1990 through March 1991, it became known for the "mountains of iron" sitting in the Saudi Arabian desert because nobody knew what

## The GAO's Report Card



Vice Admiral Lippert

### IT (or lack thereof) still hampers logistics

**LAST DECEMBER**, the U.S. General Accounting Office (since renamed the Government Accountability Office) issued a report on the DLA's preliminary effectiveness during Operation Iraqi Freedom (OIF). On the face of it, it wasn't good news. GAO reports seldom are.

While acknowledging that OIF is one of the largest logistics supply and support efforts the U.S. military has ever

undertaken, the GAO had several major complaints about the initial logistics support the DLA provided, based on observations from April until December 2003.

Some of them related directly to IT systems, or lack thereof, including: the accumulation of hundreds of pallets, containers and boxes of supplies in Kuwait without proper documentation; a \$1.2 billion discrepancy between the amount of material shipped into the theater of operations and the amount the Army said it received; and a duplication of many requisitions to circumvent the supply chain.

None of the complaints—nor the accompanying photos of boxes and pallets sitting in the desert—came as a surprise to executives at the DLA. In fact, they were all areas IT was already working to improve. On March 30, DLA Director of Supply Corps Vice Adm. Keith Lippert testified before the House Armed Services Committee about the business process changes being undertaken at the DLA to address the flags raised by the GAO, including creating a new RFID policy to solve training issues and deploying DLA "boots on the ground" in Kuwait to deal with distribution issues that had arisen.

Director of Information Operations and CIO Mae De Vincentis says the DLA is already hard at work solving the issues outlined in the GAO report, demonstrating a level of responsiveness that's new to the agency.

—S.O.

was in the containers. Capt. Paul Talwar, who went on to head up technology services and support for the Naval Supply Information Systems Activity, had been a supply officer on the *USS Mount Vernon* then. "I was always running around to different ports looking for our stuff because the system couldn't tell us where

it was," he recalls. Asset visibility was nil; combatants in the field couldn't determine if the items they ordered had reached the theater of operations or even whether they had left the distribution centers stateside. With little confidence in logistics support, combatants often ended up ordering items again and again.

That experience provided the impetus to overhaul the DLA, particularly in terms of providing visibility into the entire supply chain.

### Agility in Action

- Centralized control of 23 distribution depots reduced the average time between receipt and release of an order from 12 hours to one hour
- Using the existing distribution system allowed Web-based deployment in 160 hours

### An Off-the-Shelf Answer

The overhaul has been complemented by big changes in IT, most notably a \$741 million enterprise initiative under way called Business





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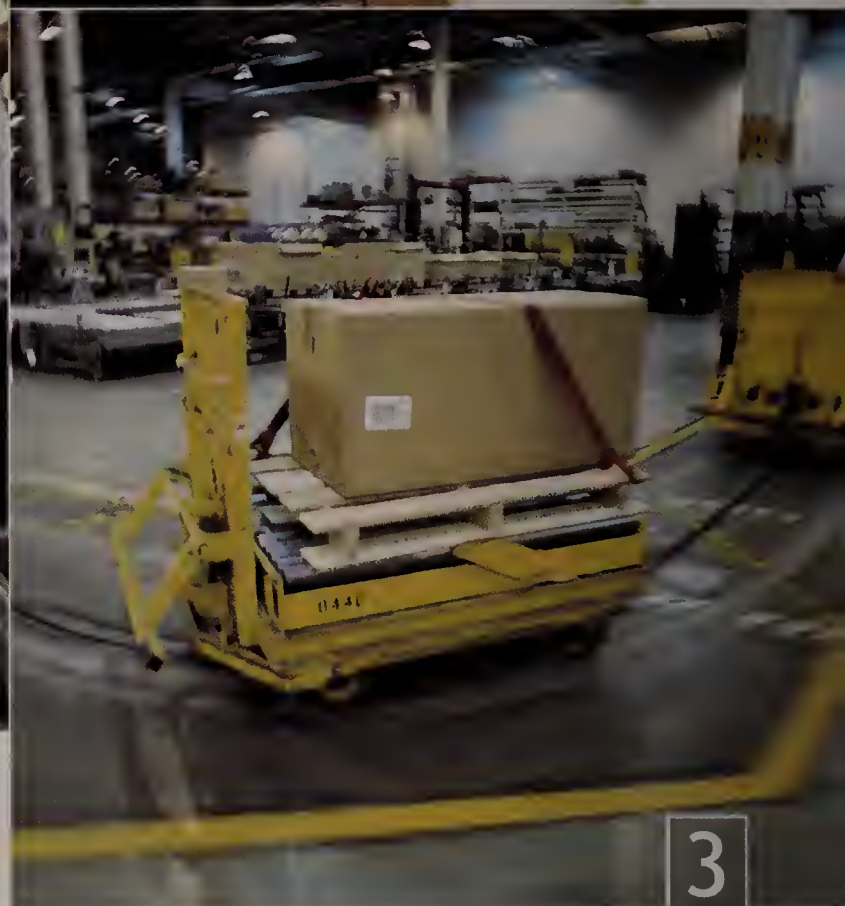
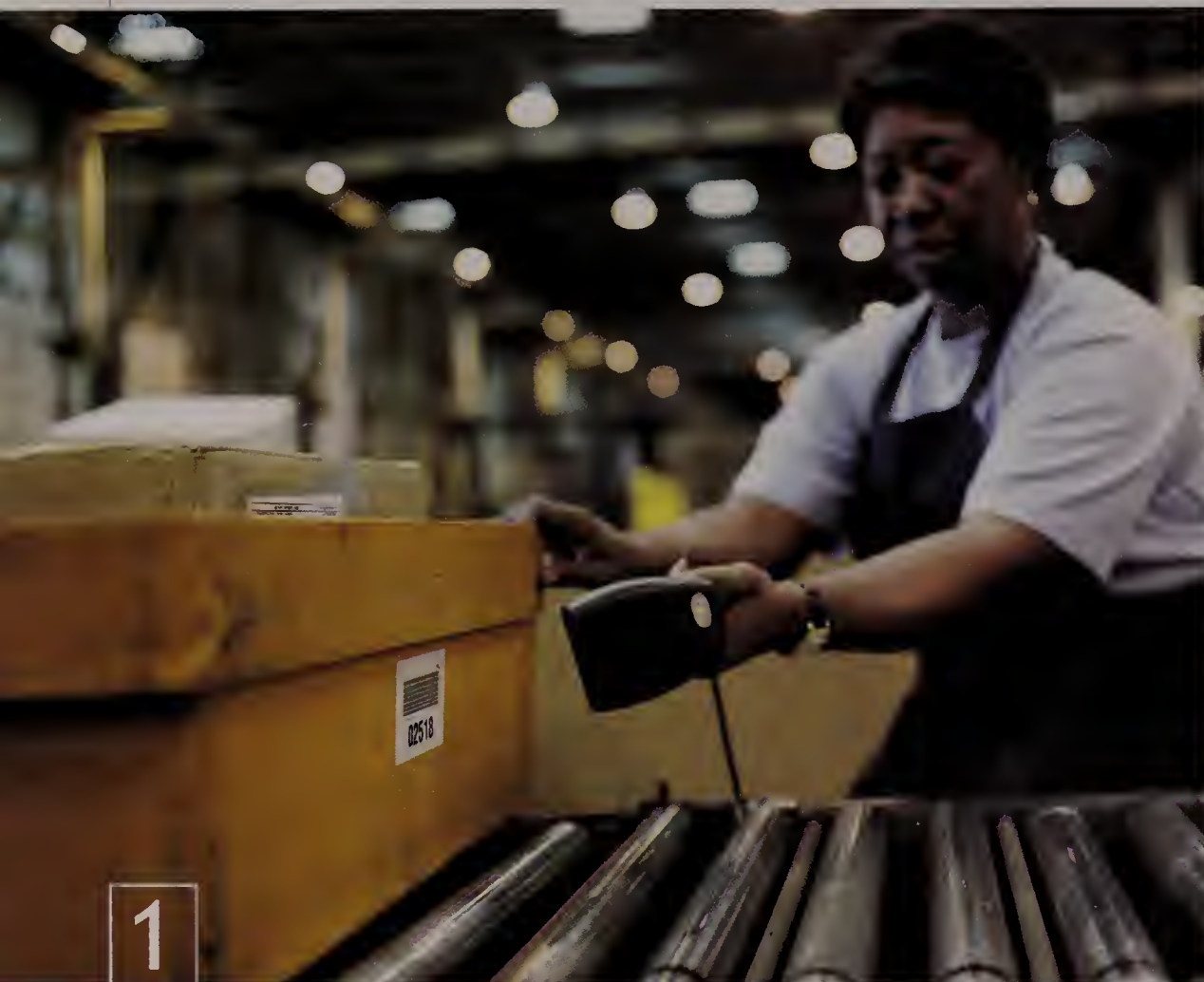
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1. A worker at the DLA's Eastern Distribution Center (EDC), in New Cumberland, Pa., electronically logs material data. 2. Once received at the center, products move on conveyors. 3. Automated carts loaded with pallets of stock travel throughout the building.

Systems Modernization (BSM) that will replace the legacy and point systems with new enterprise systems and architecture. The seeds of the idea came during Y2K. "We were all aware that our systems were getting old. We had four or five failed attempts in the 1980s and '90s to replace our legacy systems," says Director of Information Operations and CIO Mae De Vincentis. "They failed for a variety of reasons: There wasn't executive buy-in, or the way we were going about it was painful, and we just couldn't get any passion around it. Also, at the time, we intended to build our own software—which we always had, and that takes *forever*."

De Vincentis took over as deputy CIO in 2000, ascending to CIO a year later. She began to manage IT as a portfolio and put governance tools in place because she wanted to

rebalance the portfolio to rein in maintenance costs and free up money for the multimillion-dollar BSM investment.

Simply moving the old system out of the mainframe environment couldn't cure what ailed the DLA, its IT leaders thought. "In the past, the DLA was very transaction-oriented. What starts the DLA business model is the receipt of the order. We put the material on the shelves based on that demand," explains Dave Falvey, the DLA's program executive officer in charge of overseeing developing programs such as BSM. "We want to be proactive in our anticipation of the warfighters' requirements. And our legacy system wasn't capable of doing that."

De Vincentis opted for an integrated approach, choosing an ERP system from SAP and supply chain software by Manugistics. Besides being quicker and less expensive than

building a new IT backbone from scratch, IT and business leaders decided that the off-the-shelf systems would offer the capabilities needed for the DLA to become more flexible and customer-focused. The software could provide more accurate demand forecasting based on both historical demand and predicted demand, more accurate and compliant financial processes, newer technology (the legacy system was over 30 years old and increasingly expensive to operate) and an enterprise view of information for senior management.

### A Single Face to the Customer

IT leaders also decided to go to a single instance of SAP—in essence, to force the enterprise to standardize on certain practices and to ensure that the same business policies and processes were used across the agency's diverse





**4.** Army reservists pick and pack items from pallets. Once packed, items are placed on conveyors and sent directly to shipping. **5.** The EDC is the largest Department of Defense distribution center with more than four miles of track.



operations. Creating consistent business processes enterprisewide, says De Vincentis, would also enable the DLA to react more swiftly to fast-changing requirements and do so across the agency's supply chain.

But laying the groundwork for a single instance of ERP has been difficult. "It's been a huge leap," De Vincentis says. Disparate locations, long accustomed to following their own business processes, had to get on the same page in order to provide customers with a seamless experience across the supply chain. Understanding the anguish that the business process changes would cause, the DLA has taken its time—introducing users in phases and adding new functionality along the way. "I come from the school where I've tried big bang," says Falvey. "It doesn't work. In an organization like DLA, the only way you can eat an apple is one bite at a time." Falvey's team began by getting buy-in from the eight top DLA executives. Then, they brought in a group of 25 functional leads from across the DLA to begin evaluating vendors and products. Then, 100 power users

were selected to start using the system. Today, there are more than 500 people on the BSM development team and 1,250 registered BSM users—with the ultimate goal of 5,000.

So far, \$3 billion of the DLA's business runs through the integrated BSM system. And benefits have already started to accrue. "We timed the throughput in the new system from receiving the customer order, dropping the material release order to the distribution center, picking and packing the order, and getting it out the door. [In the best case,] it was out the door in 17 minutes," says De Vincentis. With the legacy system, the average time between order receipt and ultimate release was 12 hours; now that average is an hour.

### The Ultimate Agility Challenge

Being agile in peacetime is one thing. But when the Pentagon announced plans to invade Iraq (the same area of the world that the DLA had so publicly failed in before), the agility of the DLA and IT was truly tested. Once the DLA had found a distribution site—Camp Arifjan,

Kuwait—it could begin moving material forward in preparation for the war. But first IT had to figure out a way to also "forward deploy" its main distribution system to the Persian Gulf, because as DLA veterans knew, "Without a system, you'll go blind trying to figure out what you're doing because you're moving so much stuff," De Vincentis says.

Within 160 hours of getting their marching orders, IT employees at the agency's system sustainment operation in Ogden, Utah, Web-enabled the distribution system (which military personnel already knew how to use) tested it and had it up and running. Training takes time, and IT leadership knew this was no time to introduce a new system to customers.

Internal customer Phyllis Campbell, who has worked at the DLA for 38 years, was impressed. "They took a system that was resident in 23 locations and were able to put it overseas quickly. That demonstrated just how flexible and how agile the systems and support from IT had become," says DDC Deputy Commander Campbell.



But the biggest change in the DLA's response to OIF versus the last Gulf War resulted from a direct order from Gen. Tommy Franks, the head of U.S. Central Command. In a message dated July 31, 2002, he ordered that anything coming into his area of operations had to have an RFID tag on it.

Franks, says De Vincentis, wanted to steer clear of those mountains of iron. "He needs to have total asset visibility." Such visibility would enable those commanders to see the total logistics picture and enable quicker and more accurate decision making.

The Office of the Secretary of Defense had already agreed on RFID standards; the DLA's distribution center in Pennsylvania increased its RFID capabilities quickly and soon had tags going on every van that left for eventual arrival in the area of operations. In all, 96 percent of supplies that went into the theater of operations from the DLA's depots contained RFID tags.

Lippert is proud of the speed and agility the DLA displayed leading up to the war in Iraq. "Our support for the war was really excellent," he says. "We spent nearly a billion dollars—\$924 million to be exact—getting ready for the shooting war from September to January. And when it started, we had a robust supply system ready to go."

As of June, the DLA had processed 831,222 requisitions totaling more than \$1.2 billion. And the DLA has been able to respond more quickly to fast-changing scenarios, such as when hostilities grew fiercer around Fallujah. "Things got really hot. Ground transportation was a concern, and we had to divert a lot of supplies," explains Lt. Col. Craig Romero of DLA's Logistics Operations. "With advice from commanders in the theater, we were able to look at things in the pipeline coming into the area of operations from the U.S. and reprioritize them for distribution by air and boat."

### The Last Tactical Mile

The DLA's performance, though far better than in the past, still had its flaws (see "The GAO's Report Card," Page 50). And they all

occur in what Lippert has dubbed "the last tactical mile." Of particular concern: the use of RFID technology and the information it provides once it reaches the area of operations.

In essence, the failure of RFID tags was a training problem. While the DLA was religiously affixing tags to vans leaving the United States, those tags weren't being read on the

### Lessons from the Front Lines

Top transformation lessons from the Defense Logistics Agency

- 1** Establish clear goals for transformation and tie them to IT systems.
- 2** Get executive buy-in early.
- 3** Put good governance and portfolio management systems in place.
- 4** Set realistic expectations up-front. Update them as conditions warrant.
- 5** Buy software, if available. Don't build it.
- 6** Think like your customer.
- 7** When the going gets tough, give users familiar systems.
- 8** Introduce new systems incrementally.
- 9** Provide onsite troubleshooting and support for new systems.
- 10** Agility is an ongoing mission.

other end. At least 7,000 vans arrived in the theater without having been identified; either the contents had been partially opened or the RFIDs had been removed or rendered inoperable. It wasn't necessarily the mountains of iron that occurred in the first Gulf War. "They were more like molehills this time," says Romero. Still, the Army had to hire contractors from Kellogg, Brown & Root to perform an inventory on the containers.

Despite the snag, the DLA has responded with a level of agility unheard of in the past. Members of Centcom Deployment and Dis-

tribution Center, a unit the DLA cocommands, quickly shipped out to Kuwait on a 120-day tour to fix the problem. "This is way different from the way we used to operate, sending people into the area of operations," De Vincentis says. All told, there are 22 DLA employees working in Kuwait, 12 in Iraq, nine in Afghanistan and 97 in the Southwest Asia region today.

The Department of Defense Automatic Identification Technology office drafted a policy that was issued last October to solve some of the problems surrounding the use of RFIDs in the field, and to ensure that members of the armed services are properly trained on the devices before they are deployed. The policy also instituted the requirements stipulated in Gen. Tommy Franks' July 2002 order.

### The Transformation Continues

This May, after several months of study, DLA and IT leadership decided to extend the schedule for completing BSM, in large part so that the organization can remain poised to support the oft-changing war scenario.

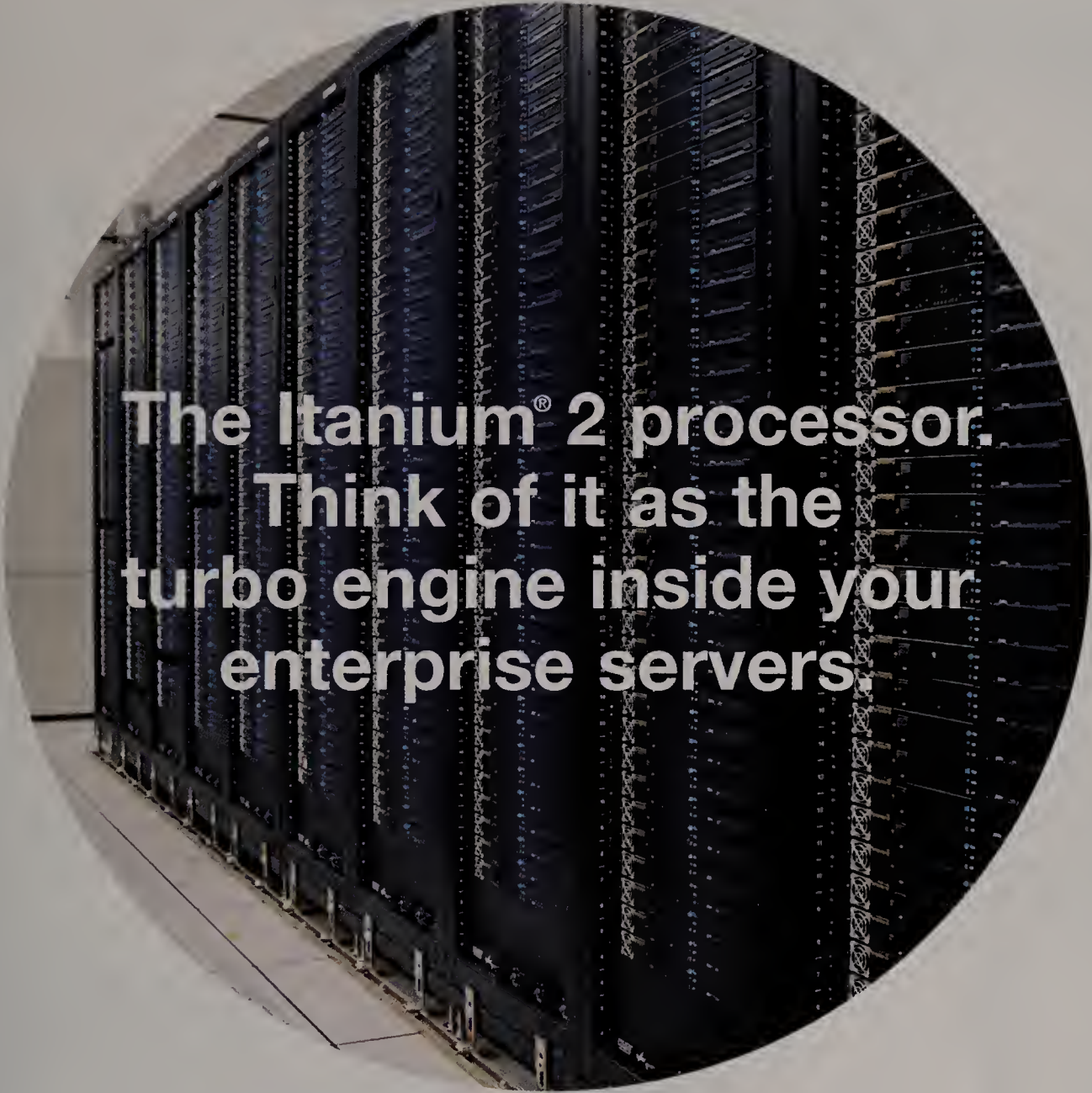
"An agency like the DLA can't, in the name of transformation or modernization, fail the warfighter," says Larry Wilson, head of the DLA's enterprise solutions. "That would be criminal."

Development and implementation continues, but IT leaders have decided to phase in new users and functionality over a longer period of time. The extension will add \$87 million to the overall cost of the project and push the full rollout back from January 2006 to September 2006, which raised eyebrows at the Department of Defense. "Are we where we should be yet? Absolutely not," says Lippert. But he remains optimistic. "Ten years from now, I see the BSM in place making us much more efficient and so much quicker. There will be asset visibility from the supplier all the way to the warfighter."

And IT will be at the heart of the ever more agile organization every step of the way. **CIO**

Senior Writer Stephanie Overby can be reached at [soverby@cio.com](mailto:soverby@cio.com).





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# Globalization

THE CHALLENGE

BY MINDY BLODGETT

## Harvard Business School *Judy Stahl, CIO*

HARVARD BUSINESS SCHOOL (HBS) faculty wanted to expand their reach to a much wider audience by sharing course structures and teaching concepts with universities around the globe.

**Agile Business Response:** HBS launched an e-learning program in January 2002 after Prof. Michael Porter sought to share his popular Microeconomics of Competitiveness course with selected faculty and universities around the world. With just a couple of months' notice, the school rolled out Porter's course in Costa Rica and Latvia the first year. Participation grew to 18 universities in 17 countries the second year, and 39 universities in 28 countries in the third. Now, hundreds of students and teachers worldwide are able to participate in Porter's class, and the school is considering adding other courses to the e-learning catalog. In addition, HBS added research centers in Europe and Japan, joining centers already open in Hong Kong and Latin America, to facilitate faculty research in key regions around the world.

**Agile IT Enablers:** Because of time constraints, the IT department needed to enable e-learning using only the existing resources and systems. HBS IT made digital recordings of classroom lectures and then placed compressed versions on HBS iSites, a Web platform for sharing information, for affiliate faculty to download or play back in their classrooms. In addition, streamed video was made available to local Harvard students for online viewing. A portfolio management approach to project oversight gave IT the tools to juggle several challenging projects, including providing IT support to the expansion of the international research center system.

"We are trying to figure out the role of technology in classrooms—not only to bring the world to our classrooms but to bring our classrooms to the world."

—JUDY STAHL



## Intelsat *Joseph Kraus, Senior VP and CIO*

WHEN INTELSTAT, a formerly nonprofit satellite telecommunications company, decided in 2001 to privatize, it underwent a radical and rapid transformation into a for-profit enterprise that provides network connectivity for businesses all over the world.

**Agile Business Response:** Once Intelsat became a commercial venture, it quickly had to learn how to provide not just satellite telecom-

munications but also fiber, teleports (broadband hubs), and a hybrid satellite and terrestrial network with a wide array of voice, data, video and broadband services to global customers. Aggressive construction of a global fiber infrastructure, teleports and control centers required the creation of an integrated operational support system infrastructure to handle booking, billing and network management capabilities.

**Agile IT Enablers:** Intelsat IT built a data warehouse as part of a business intelligence initiative. The data warehouse enables Intelsat's business executives to gather more timely and accurate financial, customer and network data. The first release of this system took only three months to roll out. Intelsat was able to identify several business opportunities and efficiencies, including an additional \$150 million in potential salable satellite capacity on the existing communications network, as well as \$3 million in immediate revenue through improved billing and customer receivable processes.

"To let corporate be more agile, IT has to be more agile, working with the data constantly and taking it as a means and not an end—and keeping an open mind."

—JOSEPH KRAUS





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Because his IT department has been transformed by agility, Blue Cross & Blue Shield of Rhode Island CIO DAVID ZINK says that today his business peers "don't do anything without us."

You can't be a little bit agile. You can't be agile in one area and not in another. You need agility in staffing, architecture, budgeting, governance, vendor relations and programming. And if that sounds like a lot, well, it is. But it's worth it.

## How to Build an

# Agile IT Department

BY MERIDITH LEVINSON

**WHEN DAVID ZINK BECAME** Blue Cross & Blue Shield of Rhode Island's CIO in July 2002, he found an IT department that couldn't get out of its own way. Like a football team that can drive to the five-yard line but can't score, the IT department could never quite finish its implementations. There was a lack of direction and a lack of organization. Different groups worked on similar projects for different departments, solving the same problems over and over, and no one could tell Zink why. IT just jumped whenever the business units asked it to, without even asking how high.

Not surprisingly, project deadlines were always slipping and departments such as sales and marketing began pursuing their own solutions. That, of course, produced a proliferation of unintegrated systems and applications.

It was a vicious cycle, says Zink, as IT was pulled away from new projects to cope with outlier apps and systems that it could neither support efficiently nor integrate effectively.

IT, and the business, had become the opposite of agile.

Blue Cross & Blue Shield of Rhode Island's (BCBS of RI) then-CEO, Ronald A. Battista (who stepped down last May and was replaced by James E. Purcell), and COO Richard Farias knew that the IT department had problems and offered Zink carte blanche support in transforming it. "If there's one key to becoming an agile IT department," says Zink, "it's top-management support." Without it, he says, the company's various departments would forever be fighting over IT resources and further fragmenting IT's focus.

So Zink wasn't interested in incremental change. He didn't want to rock the boat; he wanted to sink it and build a new one. He began the transformation by firing vendors that weren't providing support, leeching the company's budget. He outsourced day-to-day IT operations, including the help desk and application development, to Perot Systems. He established a governance organization for monitoring the contract with Perot



and developed an architectural plan that would migrate BCBS of RI from its aging, closed, proprietary systems to an open architecture. He brought in new project management methodologies. He introduced discipline to the processes of developing business cases for IT projects and defining requirements for new applications.

"We took on the whole world of IT and tried to improve our capabilities across the board," he says.

"Now we have a working relationship with everyone," says Zink. "We have input on everything. We're able to deliver much faster because we're totally integrated with the business."

Zink understood that to restore the business-side's confidence in IT and make his department agile, he had to look at a broad spectrum of IT functions. BCBS of RI and many other CIO 100 honorees reworked different aspects of their IT departments—including staffing, architecture, software development, vendor management and budgeting—to make them more nimble, responsive and, ultimately, valuable to the enterprise.

## Training an Agile Staff

An incident early in Douglas Caddell's now five-year tenure as CIO of law firm Foley & Lardner underscored for him the importance of familiarizing IT employees with the pressures and nuances of a client services business.

One day around 4:30 in the afternoon, an engineer Caddell had hired received a call from a tech support person in Foley's Washington, D.C., office. He couldn't get the printer to work, and an attorney needed to submit a filing to a judge by 5 p.m. The engineer told the support person that he'd work on the problem first thing in the morning. The attorney went ballistic. If he didn't submit on time, his client would be in violation of a court order. The engineer, however, didn't know that.

When the story got back to Caddell, he came up with the idea for Foley's Technology Orientation Program (TOP).

"We created the TOP program to get back-room people like programmers, analysts and engineers from the national office into a prac-

ticing law office so they could see what our business is about," says Caddell. Now by their third or fourth week on the job, technology workers new to the national office in Milwaukee are sent to one of the company's larger regional law offices for a week. They meet with all of the administrative departments such as word processing, document management and loss prevention, library services, office services, litigation support, accounting and HR (areas they'd never deal with let alone see in the national office) to learn what those departments do and how they use technology to do it.

### Agility in Action

— Relying on agile software development methodologies such as joint and iterative application development fostered business-IT alignment and enabled dispersed teams to work on different parts of a software program concurrently

— Setting up a governance team to monitor an outsourcing contract enabled daily tracking of metrics and early warning of problems



In order to achieve IT agility, Foley & Lardner CIO DOUGLAS CADDELL instituted a training program to ensure that his staff understood the business.

About 25 percent of their time is spent in these meetings, says Linda Sanders, director of tech support in Foley's Los Angeles law office. The rest of the week they work alongside the local office's technology staff, repairing broken or malfunctioning equipment, going on support calls to attorneys' desks, and setting up video conferencing—all so that they can experience firsthand the pace and pressures of the business. Employees who go through TOP have to fill out a 10 question survey summarizing what they learned and providing feedback on the program.

By exposing IT workers to the deadlines attorneys are under, their high expectations and the gravity of the matters with which they deal, Caddell hoped to create an agile, high-performance IT department that could turn on a dime, set and reset priorities and develop initiatives that would streamline work processes and enhance the relationship between Foley and its clients. (The experience also helped IT employees understand that every hour an attorney can't work equals a loss of



**“We don’t go off and plan requirements on our own for a year and then build software for three months. That’s the old waterfall model of software development that’s largely discredited in the industry.”**

—Terry Talley, senior technical advisor, Acxiom

\$300, the company’s billable rate.)

Having a deep understanding of the business also enables the IT department to develop innovative applications such as its automated conflict checking system, which, in a matter of hours, makes sure that Foley has no prior relationships preventing it from taking on a case. Systems such as this help Foley differentiate itself in a highly competitive industry. For example, one of Foley’s clients was so impressed by the firm’s ability give it a quick answer on potential conflicts (as opposed to the days that it took other firms) that it hired Foley to work for its other business units.

## Building an Agile Architecture

Four years ago, an unreliable IT infrastructure was the Achilles’ heel at Golden Gate University (GGU), a private San Francisco-based school geared toward working adults. Weekly network and server failures that caused the university’s e-mail and ERP systems to go down for hours at a time crippled GGU and prevented it from achieving the goals it had laid out in a turnaround plan—such as providing access to enterprise data through a Web browser, letting students apply for admission and register for courses online, and offering classes on the Web. How could students or administrators trust the network (and the university) if it was always crashing?

The network and server failures resulted from the lack of real architecture supporting them, just a hodgepodge of unstable, unintegrated legacy systems and platforms. GGU hired Anthony Hill as its CTO in August 2001 to chart a robust and extensible path for IT. Hill implemented a Linux-based open architecture that would make the IT department more productive by focusing it on a single set

## The Fruits of Agility

What an agile IT department does for our honorees

- 1** Enables greater alignment with business needs
- 2** Allows IT to be looked upon as a strategic business partner
- 3** Lowers IT costs
- 4** Cuts down waste and inefficiency
- 5** Improves project success rates

SOURCE: “The Agile 100 Honoree Survey”

of technologies. And that, by virtue of its stability and extensibility, would enable the university to add the networked services it needed to attract students.

Hill chose a Linux-based open architecture because of its low total cost of ownership and lack of vendor lock-in. “Open source makes me more agile by giving me a choice of hardware and a global community of support that we don’t get through vendor solutions,” says Hill. Additionally, by standardizing on one operating system, his staff can deepen its expertise in that area. And having a deeply skilled IT staff, a global community of support and lots of different development tools from which to choose means that the IT department can respond more quickly to change and to the university’s needs. For example, since moving to the open architecture and the Linux OS, Hill says his IT department deployed the notoriously complex Oracle 11i ERP suite, relaunched GGU’s website, and upgraded its networking and

database infrastructures faster and with more quality than it would have been able to do two years ago. “Right now, I think we’re delivering seven to 10 times more projects with the same number of people than we did two years ago,” Hill says. “Obviously, if we can deliver more projects faster, that allows the business to achieve its goals faster.”

## Programming the Agile Way

Since Acxiom began experimenting with grid computing in 2000, the giant customer information aggregator increasingly relies on agile software development methodologies such as extreme programming (characterized in part by continuous testing of small coding improvements), rapid application development (contingent upon the reuse of software components), joint application development (involving the end user in design and development) and iterative development (in which changes are made constantly throughout the development process).

“We don’t go off and plan requirements on our own for a year and then build software for three months,” says Terry Talley, the senior technical advisor in charge of Acxiom’s grid initiatives. “That’s the old waterfall model of software development that’s largely discredited in the industry.”

In particular, iterative and joint development, wherein programmers regularly produce new releases of software in close collaboration with business users, provides Acxiom with a number of ways to achieve agility, says Talley. The two methodologies foster close alignment between business users and development staff, and they enable developers to address users’ needs and requirements for an application as soon as they surface. They also enable geographically dispersed teams to work on different parts of a software program at the same time using a variety of open source tools, such as an online repository where developers can study requirements, report bugs and check in code.

Rapid, iterative and joint development also facilitate the easy reuse of code, which speeds up the process. For example, when a developer



has to build a Web service, he can simply go to Acxiom's Web-based software library and check out the lines of code that make Web services secure and reliable so that he doesn't have to rewrite those functions and thus can focus on coding for the desired functionality, whatever it may be.

"Incremental improvements and iterative development cycles all play into our ability to deliver quickly," says Talley.

Each of Acxiom's 25 to 30 development teams decides which agile software development methodology it's going to use to write a particular application (or piece of an application) based on the team's skills and the staffing or time constraints it may be under. For example, to develop a job-scheduling application in the C++ language, one of Acxiom's technical unit leaders opted for the pair programming approach when he realized his team didn't have the perfect mix of skills. He had people who understood job scheduling, but in a main-frame environment, not a C++ environment. Conversely, he had staffers versed in C++, but not in job scheduling. So he paired the engineers who had previously worked on job scheduling apps with engineers knowledgeable about C++. Thanks to this approach, the team met its deadline and created quality code in a first release.

"Delivering software is important to our business, and we must manage that development environment so that we're always making progress," says Talley.

### Keeping Your Vendor Agile

In preparation for outsourcing 650 employees in eight functions including claims processing, IT operations, telecom administration and application development to Perot Systems on June 1, 2003, BCBS of RI CIO Zink established a governance team to monitor Perot's performance. While the governance team is similar in purpose and structure to outsourcer oversight organizations at other companies, it was set up expressly to react with agility to changes in the business and to get those changes reflected in the contract.

Zink appointed eight different BCBS of RI

executives to monitor Perot's performance on a daily basis in each of the functional areas. These BCBS of RI executives track more than 125 metrics—such as the number of claims outstanding, the length of time it takes to pay a claim and network response time—to see if

and representatives from Perot on a weekly basis to review status reports.

The governance team also facilitates changes to the contract and SLAs as the business changes. For example, in October 2003, BCBS of RI changed an SLA pertaining to the

## "If there's one key to becoming an agile IT department, it's top-management support."

—David Zink, CIO, Blue Cross & Blue Shield of Rhode Island

there are any deviations from the norm, good or bad. They also monitor 50 service-level agreements (SLAs) that have financial penalties attached if Perot fails to meet them. Each of the BCBS of RI executives oversees someone from Perot. And Zink meets with his team

number of points Perot could earn for processing claims between different states' Blue Card plans. The Blue Cross Association had shortened the amount of time that members were given to pay claims; the SLA was changed to reflect the new rules.

### The Top 10 Agile Practices

What Agile 100 organizations say are most effective in becoming an agile IT organization

- 1 A companywide standard software base
- 2 Central control and accountability for IT costs
- 3 Repeatable processes for project management
- 4 A flexible software architecture
- 5 A standardized development platform
- 6 A fluid balance of payroll employees, contract employees, and outside consultants and outsourcers
- 7 A flat organizational hierarchy
- 8 Flexible, short-term provider contracts
- 9 Flexible, quickly deployable teams (such as SWAT teams)
- 10 An optimal balance of flexible versus fixed IT operating costs

SOURCE: "The Agile 100 Honoree Survey"

### Budgeting for Agility

In 2002, at the height of the corporate scandals and the economic downturn, when Merrill Lynch's business was taking a hit, the company embarked on a restructuring of its IT operation. IT had been set up in vertical silos across Merrill's three business groups: asset management, institution and retail. Each of these businesses had its own IT staff and assets. As a result of this decentralized structure, Merrill didn't get any economies of scale purchasing IT; redundancies of technology, people and processes proliferated.

Merrill decided to centralize IT into a global services organization and to deliver it to the business as a utility. In other words, each business group would tell IT how much computing power it needed, and IT would charge the business on a monthly basis for what it used.

John Cummings, Merrill's senior vice president, chief information and services officer, and head of global technology and services, says the utility model provides a mechanism for throttling IT services—such as storage and processing power—up or down depending on business demand. The agility comes in because it "allows the businesses to change the pricing and the internal profit-and-loss dynamics of



their businesses so they can respond much more quickly to changes in the marketplace,” says Cummings. For example, if a business unit decides to phase out a product that consumed a lot of storage or processing power, Merrill now can transfer that IT capacity to another area of the business that’s growing. It can reuse the technology rather than having resources dedicated to supporting a now-obsolete product.

Before IT could begin sending bills to the business groups, it needed to explain to them how IT was charging them and what they were being charged for. IT named this awareness effort Cost Transparency Now.

Each bill that IT sends out consists of a macro view of the business’s total technology costs and breaks down the total cost into details—such as the exact technology assets and resources that were consumed to support say, Visa transactions, and what each of those assets and resources cost at a unit level. “Cost Transparency Now converts very deep and complicated technology functions into volumes and transactions and unit costs that are meaningful to a business group,” says Cummings.

Clarian Health Partners, a consortium of hospitals, has a different approach to funding its 21-person Department of Business Innovations, which combines IT, business process reengineering and procurement staff, and is charged with reacting quickly to new opportunities and challenges. The Department of Business Innovations’ budget is divided between two areas: projects that will enhance patient care and projects that will streamline physicians’ work, according to Tal Moise, vice president of the department and co-CIO. Except for a requirement that a portion of Business Innovations’ budget must go to patient care and a portion to physicians, the department determines what projects it’s going to undertake within those two categories based on Clarian’s needs. It’s not locked down; the budget is not fixed. “This gives us a great deal of flexibility. When a new event takes place, or a new market opportunity comes up, we can simply apportion those dollars to the

**Merrill Lynch SVP JOHN CUMMINGS**  
says the utility computing model  
allows IT to respond quickly to  
changing business demand.

appropriate location,” says Moise.

Because the Department of Business Innovations has the authority to decide what specific projects to focus on, it could react quickly to the effects of a new Indiana law that pertained to organ donors. Before the law was passed in mid-2003, family members of organ donors who had died had the right to veto their loved one’s decision to donate organs. The new law took away that veto. Suddenly, there was a 30 percent increase in the number of hearts, lungs and other organs coming into Clarian’s transplant lab. The lab couldn’t cope. But within two months (and for under \$30,000), Business Innovations built a system that automated Clarian’s process for matching donated organs with needy patients.

### Agile IT for Agile Business

From one IT department to another, no matter what the industry or mission, the message is always the same: To become agile, everyone in IT has to understand the business inside and out. IT can’t stay on top of business needs, or react quickly to new market opportunities, if it doesn’t know or understand the business

drivers. And just as the IT department must foster flexibility and responsiveness across a number of disciplines inside IT, companies have to promote that same flexibility and responsiveness across all their business units. Giving a stodgy business an agile IT department is like giving a fish a bicycle. There’s nothing like bureaucracy to put the kibosh on agility. Agility has to be the mantra of the the company at large, and as BCBS of RI’s Zink says, it has to be supported by the top executives.

According to Zink, you know you’ve completed the transition to an agile IT department when the business doesn’t even think of moving in any direction without IT’s input.

“I have a tremendous working relationship with my peers,” he says. All the other senior vice presidents and vice presidents come to IT for help. “Before [the transformation], they never would have thought of IT. They would have thought of ways to avoid IT.

“Today, they don’t do anything without us.” **CIO**

Senior Writer Meridith Levinson can be reached at [mlevinson@cio.com](mailto:mlevinson@cio.com).



THE CHALLENGE

# New Opportunities

BY ELANA VARON

## Allstate Insurance *Catherine Brune, Senior VP and CTO*

**WHEN INCOME** from Allstate Insurance's traditional property-casualty business slumped, the company bet that selling financial products would beef up its bottom line. And it has. Allstate Financial, the division that sells annuities and life insurance, posted profits during four of the past five years. But competitive pressure puts a premium on the company's ability to quickly and efficiently introduce new products, and to establish close relationships with brokers and bankers who handle an increasing percentage of the sales.

**Agile Business Response:** Allstate offered the brokers and bankers who distribute its products the capability to do business via multiple channels. These channels include a portal, [www.accessallstate.com](http://www.accessallstate.com), for its exclusive agents that launched in 2002 and AnnuityNet, an industrywide sales hub. More than 90 percent of the members of Allstate Financial's distribution network use the portal to access information about new products and conduct transactions. They generated a 14 percent increase in sales of financial products last year.

**Agile IT Enablers:** Allstate designed a service-oriented architecture that treats data and business applications as components that can be integrated as needed, using Web services. For its financial products, the company created a set of 15 standards-based technology components common to all of its offerings that Michael Boyle, Allstate Financial's vice president and CIO, compares to Lego blocks. Each of the multiple channels used by Allstate Financial's distributors employs the same components to execute transactions, whether it's pricing a policy, changing an address or choosing new investments.

"It used to be that each business developed what they needed. Now developers work on problems across businesses."

-CATHERINE BRUNE



## Warner Music Group *Tsvi Gal, CIO*

**RECORDING INDUSTRY LAWSUITS** put a dent in the popularity of free, illegal downloads. But customers still want music online and on their cell phones. A new process for creating digital masters gives Warner Music Group (WMG) the capability to respond quickly to demand for new formats and provide a legal alternative to pirated digital music.

**Agile Business Response:** Fourth in global market share in 2002 (behind Universal, Sony and EMI), WMG immersed itself in the Internet. The company revamped its production process, replacing analog tapes with digital masters of recordings that could be easily reproduced in multiple formats: online downloads, traditional

CDs and cell phone ringtones. The decision paid off when WMG became the first major label to cut a distribution deal with Apple in 2002 to provide downloads for iTunes, and last year with multiple wireless carriers to supply musical ringtones. Industrywide, purchased downloads outsell singles, while the ringtone market has reached approximately \$3 billion. According to CIO Tsvi Gal, the company was the only major recording company to achieve real growth in 2003. (As a private company, WMG doesn't publish its numbers.)

**Agile IT Enablers:** Beginning in 2002, WMG deployed a set of centrally managed, Java-based workflow applications and other online tools that are accessible to each of its brands via the corporate intranet. The applications cover the processes of creating digital masters of recordings and reformatting them for CDs, ringtones, karaoke, online downloads and radio playlists. Another Web application delivers recordings to WMG's three global manufacturing facilities, enabling simultaneous worldwide production and release of CDs.

"We ignored Web reality with Napster, and it isn't going to happen again."

-TSVI GAL





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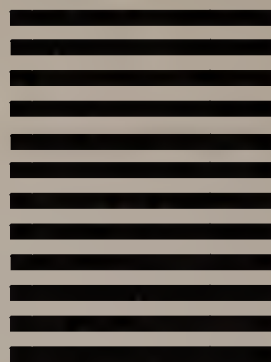
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Agile companies can adjust their operations to cope with unexpected events, whether it's a surge in new business or a backlog in the warehouse. Four CIO 100 honorees tell how IT makes them and their trading partners flexible.

# The Supply Chain

BY TRACY MAYOR

**FAXES. PHONE CALLS.** Desk-bound quality specialists storing thousands of pieces of paper in hundreds of binders.

These were the ways that DaimlerChrysler used to track development and resolve quality issues with the thousands of companies that design parts for the cars, trucks and commercial vehicles manufactured by its Chrysler Group unit. Problem was, when a drive train was one-eighth of an inch too long or a widget a half-centimeter too wide, it could take up to three weeks to notify the supplier, fix the problem and insert the remedied part back into the design process.

Now those suppliers instead use Powerway, a Web-enabled quality management system and supply chain collaboration network. Faster and more accurate than the paper-based processes it replaced, Powerway helps Chrysler identify potential design and engineering conflicts in theory before they even occur in reality. That in turn helps the company design new cars much

faster—in months rather than years—which is a key consideration in an industry where consumers are fickle, competitors are tough, and time to market can make or break a company.

The automotive industry is one of many in which a nimble supply chain—one that can respond quickly to changes in customer demand—plays a crucial role. An agile supply chain is fast from end-to-end, but more important, it's flexible. Lean operating practices and manufacturing principles enable agile supply chains to accommodate or bypass disruptions smoothly.

"Some of our plants can require over 450 truckloads a day. A supply chain breakdown can bring an entire assembly line to a halt," says Susan Unger, DaimlerChrysler senior VP and CIO. "For us, a robust, agile, IT-enabled supply chain is critical." DaimlerChrysler comprises the Mercedes and Smart Passenger Car Group, the Chrysler Group and the Commercial Vehicles unit; it commands a global supply chain of staggering propor-





**SUSAN UNGER, DaimlerChrysler CIO, says an agile supply chain helps the automaker align production with customer demand.**

tions—104 plants in 37 countries, 14,000 suppliers and 13,000 sales outlets in 200 countries. Even so, in the United States, the company's Chrysler Group, which includes the Chrysler, Dodge and Jeep brands, "has always been one of the smaller domestic players," says Unger. "We have to leverage our supply base much more heavily than a GM or a Ford."

DaimlerChrysler is among several CIO 100 honorees, including ABF Freight System and GKN Aerospace North America (East), that stand out for using IT to create a supply chain that's not just efficient, but one that's nimble and predictive—that is, able to anticipate change and help companies adjust to that change and accommodate it on the fly. These companies have tapped technology to gain

insight into and extract knowledge from business and manufacturing processes that allow both the corporation and its suppliers to respond in record time to changes in the marketplace.

An agile supply chain isn't just fast and flexible; it's transparent: Managers can "see into" systems and, when necessary, make ad hoc adjustments that keep manufacturing and delivery processes aligned with customers' needs and their own bottom line. "A few years ago, IT was all about shaking the pennies out of the supply chain. There are still pennies to be shaken, but now there's a big drive to create more agility," says Gene Alvarez, a senior program director at Meta Group who tracks supply chain trends. The role of the CIO, he

says, is to bring the business closer to its suppliers and improve the "sensing" abilities of the organization—that is, its ability to detect and respond to changes in its supply chain.

Here are four ways that DaimlerChrysler and other agile supply chain leaders are using IT to become flexible.

### **1. LOOK BEYOND THE SHOP FLOOR.**

Supply chain managers must pay heed to manufacturing and shipping processes, but companies that are truly committed to flexibility look beyond the factory floor to make their supply chains more agile.

The Chrysler Group, for example, considers every step in the vehicle production and sales process as part of its supply chain, starting with the very first stage of vehicle design and ending with its service and repair. "Too many people think of the supply chain as only manufacturing, but it covers pre- and post-build as well," says Unger.

That's why Chrysler has deployed a constellation of systems that automate and streamline every part of its supply chain: One of these systems, the Global Supplier Portal, presents a unified interface and infrastructure for transactions between suppliers and all of DaimlerChrysler. Another, the Integrated Volume Planning Application, gathers sales data and relays it back to production planning applications and, from there, to suppliers so that, for example, dealers will have enough Dodge RAM trucks with 15-inch rather than 16-inch wheels if that's what's selling. And at the earliest stages of design, Chrysler and 3,400 of its suppliers use Powerway to track new parts through nine quality control "gates" before they're certified for use on production lines. (Powerway was first adapted by Chrysler for the automotive industry in 2001; it's now considered an industry standard, Unger says.)

Identifying and addressing quality problems in the earliest part of the design stage eliminates compatibility problems, explains Jeff Mowry, senior manager of supplier quality systems for IT management. That in turn



allows the company to design and bring more quickly to market vehicles that incorporate advances in technology, safety and consumer preferences, Mowry says.

## 2. SHARE LOTS OF DATA

Companies become agile by gathering data from the widest possible array of sources and putting it to timely and effective use. DaimlerChrysler's Global Supplier Portal allows the company to do this by reaching widely and deeply into all areas of its business.

Hosted by Covisint, a supplier of e-commerce technology for the automotive industry, the Global Supplier Portal presents a unified interface and infrastructure for every type of interaction between a supplier and DaimlerChrysler. The 6,000 suppliers that have registered to use the portal gain a common user interface and password for interact-

### Agility in Action

Sales and inventory data relayed back to production planning systems increased ability to manufacture products based on current customer demand

Real-time shipment status data avoided bottlenecks by routing deliveries through the least busy distribution centers

feasible for companies to capture manufacturing, production and delivery data as it is generated. Agile companies go the extra step by building supply chain systems that can monitor and react to that data as events unfold.

ABF Freight System uses a series of home-grown wireless applications called NetLink to manage how freight flows through its network. Where drivers and other personnel previously worked with printed instructions that

"NetLink gives us the agility we need to better neutralize those kinds of events," he says.

In a similar vein, the Chrysler Group uses its production control system, PC Portal, to keep second-by-second tabs on some 400,000 events—gathered from suppliers and carriers worldwide—that affect its manufacturing processes. For example, PC Portal can tell a vehicle seat supplier exactly when a seat is needed by a Chrysler assembly line, as well as when a shipment should be delayed. The parts arrive on the floor and are delivered to the assembly line operator within minutes, or sometimes even seconds, of being needed, but not before. Some 95 percent of Chrysler Group's parts and components are shipped JIT (just-in-time) and, thanks to a sequenced parts delivery (SPD) program, delivered to its plants in the same order the vehicles are assembled. JIT and SPD eliminate secondary



Armed with data delivered to handheld devices, the ABF Freight System drivers can better react to unexpected events, from a hurricane to a blown truck tire, says Wes Kemp, vice president of terminal operations.

ing with DaimlerChrysler's many different business groups. And they do so, to the tune of 25,000 hits per day, according to Mowry.

As with Powerway, Covisint is available to the entire automotive industry, but the breadth and depth of DaimlerChrysler's use of the portal sets it apart from the competition, Mowry claims. "We are about to be using it globally across all our brands, and we have many more users and more hits per day than the competition," he says. Using the Global Supplier Portal to share information across business units helps all the divisions communicate more quickly, identify and resolve problems faster, and stay fleet in the face of the competition.

## 3. PUT TIMELY DATA TO WORK

Advances in mobile technology have made it

had been prepared hours or even days in advance, they now carry handheld devices connected to wireless networks that transmit delivery data every second. Armed with this data, the company can avoid bottlenecks and better react to unexpected events, from a hurricane to a blown truck tire, says Vice President of Terminal Operations Wes Kemp.

For example, workers on the loading dock can now check the status of the closest ABF distribution center. If a surge in business threatens to overwhelm the Kansas City center, a worker can redirect a shipment to the Little Rock or South Chicago center, thereby preventing a bottleneck in Kansas City that Kemp says could take days to work through. Not only are such backups costly to ABF, they disrupt their customers' supply chains as well.

storage, reduce excess transportation and minimize inventory, but leave little room for errors or miscommunication. "Migrating to JIT shipments and reducing inventory levels puts extreme pressure across the entire supply chain; so when we do have an adjustment, we have to be coordinated," explains Kathi Vernaci, senior manager of plant supply systems for the Chrysler Group. The PC Portal facilitates such coordination.

## 4. GET CLOSE TO YOUR PARTNERS

To be agile, companies need to know what's happening beyond their own walls. One sluggish supplier upstream or one backed up customer downstream can hobble even the nimblest supply chain. To avoid such situations, companies need to get digitally close



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to enough of their partners to know when their shortages and overages are happening.

GKN Aerospace North America (East), a supplier of engine parts for aircraft and aerospace vehicles, knows—down to the hour and minute—the needs and wants of its largest customer: Boeing.

GKN Aerospace North America (East) was born in 2001, when aerospace giant Boeing decided it wanted out of fabrication to concentrate on assembly and sold its division as a separate company to GKN. Even so, the company's supply chain wasn't fully integrated with Boeing because Boeing was adopting new approaches to procurement, such as minimum and maximum inventory thresholds and flexible scheduling.

The challenge, says Gregg McDaniels, an applications manager at GKN, was to develop a system that could align GKN's production with Boeing's consumption. The result is Sentinel, GKN's event-driven manufacturing system that watches key indicators in Boeing's production systems via a Web-based portal and reports back to GKN's ERP system. Sentinel responds automatically to Boeing's demand by increasing, decreasing or shutting down GKN's production systems according to parts usage.

The supply chain flexibility enabled by Sentinel has returned a 38 percent reduction in cycle times for products and a 35 percent reduction in inventory, which amounts to some \$25 million saved. The company has also reduced its workforce by 20 percent because Sentinel tracks information about changes in the supply chain that were previously tracked by analysts.

In developing Sentinel, McDaniels sat down with key Boeing personnel to capture system requirements. "We had sales order analysts and contract and pricing specialists, shop-floor control guys and ERP analysts," McDaniels lists. They provided feedback about the features that would best benefit Boeing, as well as a forum for the Boeing officials to get their questions answered. "We needed their buy-in, and this was the best and quickest way to get it."

Why would Boeing, wrestling with its own

## The Shipping News

Data from logistics suppliers creates pathways to agility

**SHIPPERS OF ALL SIZES** and specialties have invested heavily in IT to become more agile and efficient. For ABF Freight System and FedEx, two CIO 100 honorees in the logistics business, a byproduct of these investments has been access to data about customers' shipping practices that the customers can use to improve their internal agility.

"A lot of times, we know more about our customers than they do—how they're responding to events," says Robert Carter, FedEx executive vice president and CIO. Customers can become more flexible simply by knowing exactly when a delivery will arrive and what will be in it. For example, a test lab for bone marrow samples (which must be processed almost immediately after they're received) uses data from FedEx to forecast its staffing needs for the next day. "They're no longer just reacting to how many things show up," says Carter.

Roughly 25,000 customers (accounting for 80 percent of ABF Freight System's annual revenue and shipment tonnage) use its eCenter e-commerce infrastructure to track, redirect or merge shipments en route. In addition, ABF's decision-support and demand-forecasting applications help customers view their shipping histories to pinpoint inefficiencies and missed opportunities.

NGK Spark Plugs USA uses daily shipping reports from ABF to track materials that the company has ordered shipped from its suppliers to its subcontractors. If a subcontractor says he needs more electrical connectors, "I can use the report to see what shipments are coming and expedite an order," says Materials Group Supervisor Doug Erwin. That ability to react quickly speeds up NGK's overall manufacturing process. Furthermore, by looking at his company's shipping trends over a monthlong period, Erwin is able to identify ways he can consolidate regular shipments, which both saves NGK transportation costs and gets parts where they need to be ahead of schedule.

—T.M.

problems caused by the ongoing aerospace industry slump, invest the time to help what was now a separate company improve its supply chain? "The better GKN [does] business, the cheaper we can get our product from them," says Cassandra Erdelac, a general procurement supplier manager for Boeing Integrated Defense Systems. "If GKN can't give us a part on time because one of their raw materials suppliers is late, it doesn't do us any good not to know about that. Through the supply chain, everybody is linked."

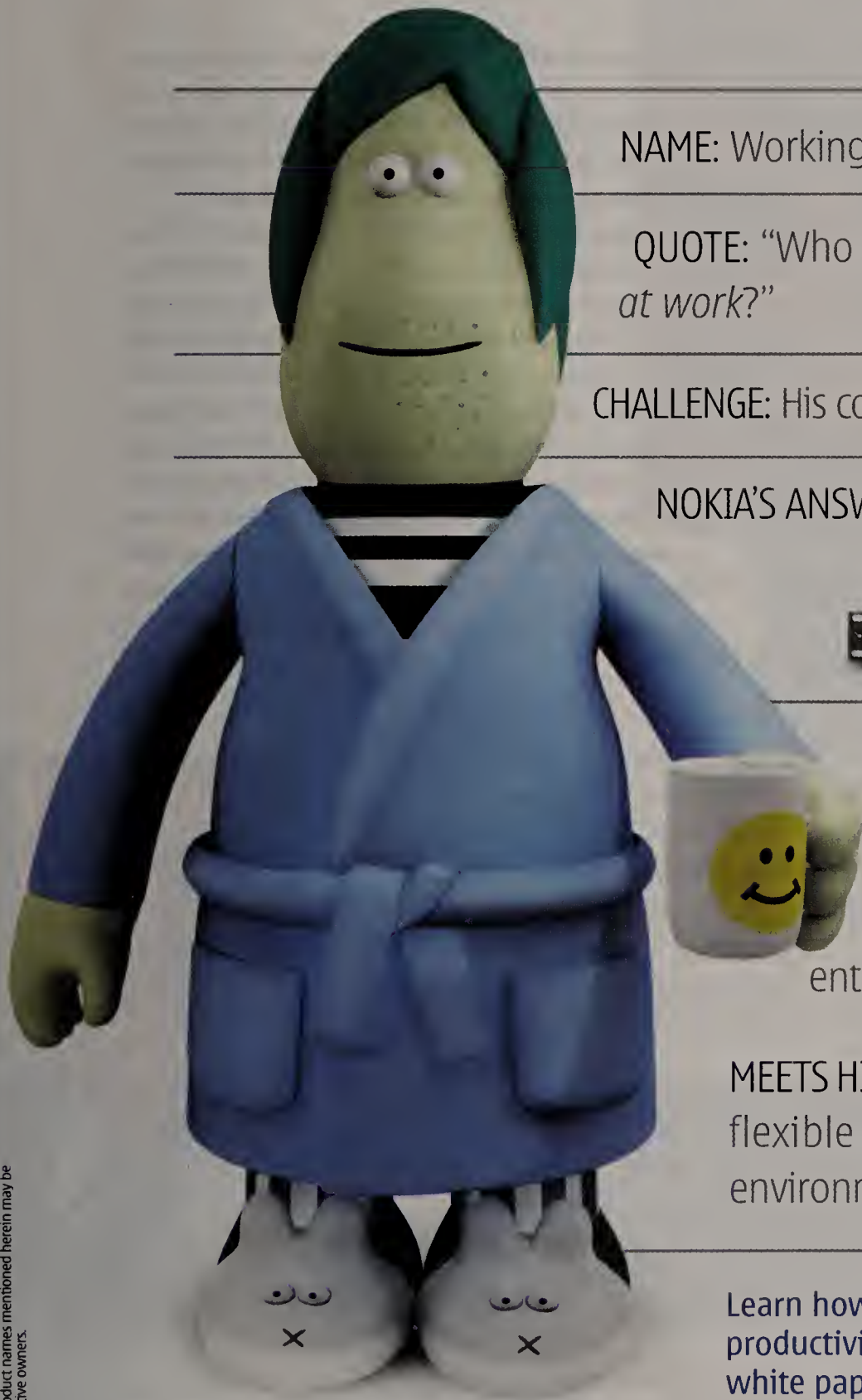
In the past decade, information technology

has radically transformed the supply chain from a world of purchase orders and bills of lading to a universe of digital data swaps. The challenge now, as CIO 100 honorees demonstrate, is to use the opportunities presented by advances like real-time data availability, global communication and business-partner alliances to create a supply chain that's not simply fast, but agile as well. **CIO**

Tracy Mayor ([tmayor@comcast.net](mailto:tmayor@comcast.net)) is a freelance writer. Send feedback to Senior Editor Elana Varon at [evaron@cio.com](mailto:evaron@cio.com).



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# Cost-Cutting

THE CHALLENGE

BY MEGAN SANTOSUS

## City of Baltimore *Elliot Schlanger, CIO*

FACED WITH A DECLINING TAX BASE, reduced federal funds and less favorable investment returns, the city of Baltimore nevertheless has to contend with high fixed costs and fulfill the service expectations of citizens.

**Agile Business Response:** To get a handle on Baltimore's services, as well as enable the means to improve them, Mayor Martin O'Malley spearheaded CitiStat, a real-time performance measurement and management accountability program. Agencies city-wide develop performance dashboards for operations. With CitiStat, performance data is

reviewed every two weeks rather than quarterly, enabling quick corrective action, such as cleaning up city streets or removing abandoned vehicles. Within three years of implementing CitiStat, Baltimore has saved approximately \$100 million by, among other things, flagging variances to HR policies to reduce overtime and absenteeism.

**Agile IT Enablers:** The task of collecting performance data for CitiStat fell to IT. Among the systems that feed information into CitiStat is CitiTrak, an enterprise CRM system developed by Motorola and implemented for \$2.5 million to track service calls and create a single call center for all city services. The city also implemented a fleet information management system that provides daily status reports about the city's 5,500 vehicles. While the savings derived directly from IT represent a small percentage of the \$100 million total, Schlanger says city officials are nevertheless aware of IT's impact. "Everyone agrees that the technology has been a business enabler that has facilitated operational savings of such magnitude," he says.

"IT in this city has taken on a role of business process engineers. We look at how we do business, we compare ourselves with other cities, and then we create the models of how we want to operate."

-ELLIOT SCHLANGER

## Greater Toronto Airports Authority *James Burke, VP of IT and Telecommunications*

FOLLOWING 9/11, the airline industry suffered significant losses in traffic and revenue. As the operator of Toronto Pearson Airport, the nonprofit Greater Toronto Airports Authority (GTAA) needed to lower its operating costs to wait out the slowdown, while at the same time working to win back airlines and travelers.

**Agile Business Response:** In 1996, GTAA launched a 10-year, \$3.2 billion effort to modernize terminals and facilities. A major goal of this project was to enable airlines and other customers (including retailers, parking lot operators and security companies) to reconfigure or move their facilities easily and quickly—overnight in some cases. At the same time, GTAA had to maintain complex logistical operations and security procedures for more than 50 airlines. All this had to be accomplished in an atmosphere of extreme cost control.

**Agile IT Enablers:** GTAA's IT group implemented an optical network linking voice, data and video in all buildings within a 5-square-

mile site, replacing 11 separate GTAA networks, along with dozens of networks of various tenants, from airlines to restaurants. To facilitate flexible airline reconfiguration,

"Within IT, we have to be plugged in to what's going on. We are enablers; we're not here to tell people what they can and can't do. We have to rationalize their needs."

-JAMES BURKE

GTAA IT developed a common, airportwide passenger processing system that connects to the optical network and replaces more than 50 proprietary airline check-in systems. The system's users have improved their capacity by 15 percent; airlines need less square footage to accommodate the same number of passengers.



# Roadmap to Quality Assurance

Quality assurance isn't what it used to be. It isn't where or when it used to be, either.

Whether you're talking about applications for internal use or software products for market, the development cycle has changed considerably in recent years.

Traditionally, QA testing has taken place toward the end of the software-development process, just before launch. But by then, of course, problems and errors are deeply imbedded in the product, leaving QA teams with the challenging task of resolving them under intensive pressure to get the product out the door as quickly as possible.

"If you have six weeks to test, the issues you're finding are often going to take 12 weeks to fix," says Satish Maripuri, COO of VeriTest, a division of Waltham, Mass.-based Lionbridge, which offers development, testing and global deployment services. Because they're always working against the clock, testers must often make tough choices—or set tough priorities—to keep to the schedule. And that frantic pace comes with a price. As Maripuri



## Four Steps to Quality in Global Software Development

notes: "The cost of fixing a problem at the end of the road may be 10 times higher than if it's caught earlier." But that scenario is changing. QA testing, once an afterthought, has evolved into an integral part of the design process and a key component in accelerating time to market.

In other words, cutting-edge development teams no longer view QA testing as a time-consuming, last-minute necessity. Instead, they think about quality at the source, adopting the notion of QA testing as a best practice right from the start.

That approach has never been more important than now, as companies increasingly turn to "smart sourcing," or finding the best resources available for the best price anywhere in the world. Some types of software

testing are among the top candidates for full or partial offshore outsourcing for several reasons: it's more portable than hardware, specifications and processes can be easily documented,

**"The faster you can find and prevent and fix quality issues up front, the easier it is to shorten your software development cycle time at the end."**

**—Satish Maripuri, COO, VeriTest**

and skilled testers are available in abundance.

By incorporating QA testing from the start, widely dispersed teams can address problems as they arise, before they're set in code, saving money at every step and streamlining and shortening the final stage of testing.

"It's simple," Maripuri says. "The faster you can find and prevent and fix quality issues up front, the easier it is

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# Top 10 QA Traps

The top 10 mistakes organizations make in their quest for world-class quality are:

1. No ownership of product quality.
2. No overall test program design or goals.
3. Non-existent or ill-defined test plans and cases.
4. Testing that focuses narrowly on functional cases.
5. No ad hoc, stress or boundary testing.
6. Use of inconsistent or incorrect testing methodology.
7. Relying on inexperienced testers.
8. Improper use of tools and automation, resulting in lost time and reduced ROI.
9. No meaningful metrics for tracking bugs and driving quality back into development.
10. Incomplete regression cycle before software release.

Want to avoid these pitfalls? Download free resources, including VeriTest's white paper "Optimizing Quality Practices for Software Development," at [www.veritest.com/qa](http://www.veritest.com/qa).

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## 3. Gap Analysis

At this stage, you can get a good grasp of where your company stands by comparing your processes with best practices. As Maripuri puts it: "Gaps represent opportunities for improvement." With that information in hand, you can pinpoint and address the quality deficits uncovered in your assessment. The ultimate goal: developing a customized list of best practices in sync with industry standards, which you can begin implementing throughout the software-development cycle.

At this stage, you may also consider the globalization aspects of development, which, like QA, should be built into the cycle from the start. Based on your company's situation, you'll choose between two routes. You can internationalize and localize the software—that is, adapt it to the technical, cultural, legal and linguistic requirements of particular locales—during the initial implementation. Or you can simply make provisions now for attaching localized components later.

## 4. Roadmap Definition

In this final step, you'll define a high-level business plan for reaching your desired QA destination. After implementation, you'll go full circle, returning to your initial assessment and gap analysis and comparing what you find with your newly redesigned cycle. At this stage, you may want to use customized metrics for gauging the ROI of building quality assurance into your software-development processes from day one. But by the time they attain roadmap definition, most organizations will already have experienced the benefits firsthand. As VeriTest's Maripuri says, "It's all about faster time to market." ♦

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## For More Information

Request more information on QA best practices and VeriTest by calling 781/434-6123 or e-mailing [info@veritest.com](mailto:info@veritest.com)

to shorten your cycle time at the end."

Following are four phases of integrating QA into the entire global software-development cycle:

## 1. Discovery

Whether you develop applications to use internally in your lines of business, or you produce and sell software, whether you outsource engineering or do the job in-house, it's critical to begin with discovery.

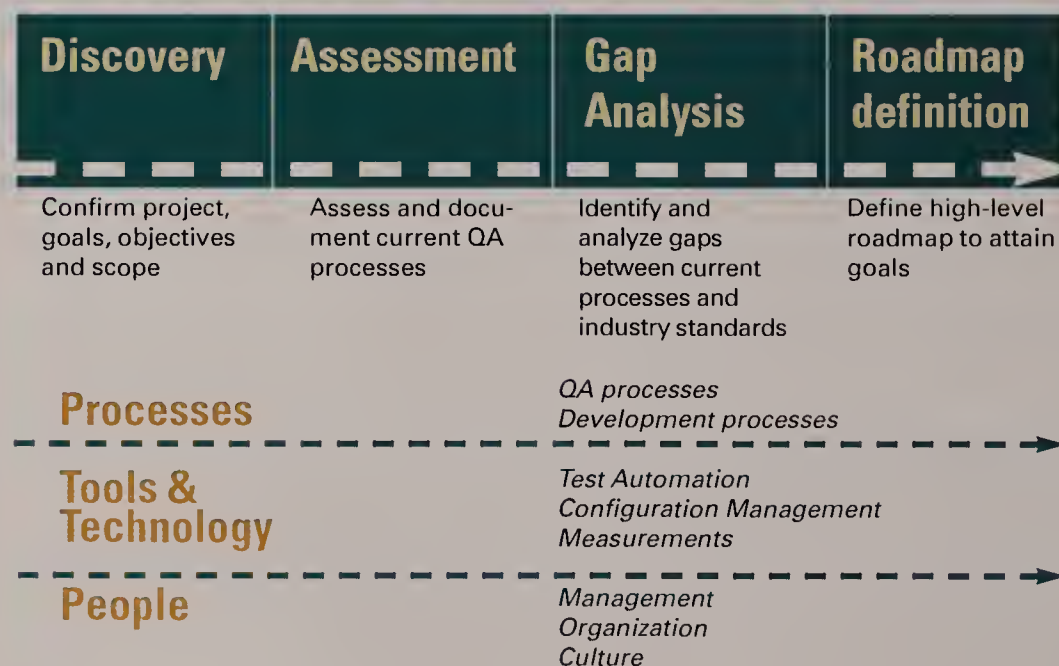
That means taking inventory of current development and testing processes, systems, practices, people and tools in every location before you start overhauling your approach. Your inventory should also identify stakeholders in a range of areas: business analysts, customers, project managers, development managers, test managers and QA technical managers. Finally, this is the time to determine objectives, expectations and

measurements for success for both groups and individuals.

Taking stock of what you've got today will help determine where you're headed and what issues are likely to arise along the way.

## 2. Assessment

The next step: understanding the maturity of your organization's current software-development processes. To accomplish that goal, you should evaluate current capabilities in software product synthesis, inspections, formal reviews, testing and customer service. This stage might also include competitive analysis—that is, examining the best aspects of rival products—as well as surveying users about what features they'd like included. Depending on the type and scope of project, developers might even do early usability testing by creating mock-ups of interfaces for user focus groups.







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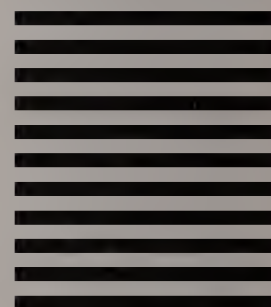
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The benefits of M&As can be lost if IT and business leaders don't act quickly to make staffing and organizational decisions, integrate systems and provide training. These CIO 100 honorees know what it takes to accomplish agile acquisitions.

# Come Together Right Now

BY KIM GIRARD

**IN JUNE 2003, PALM INC. VICE PRESIDENT** and CIO Marina Levinson faced a ticking clock and a long to-do list after her company bought rival handheld maker Handspring, intending to take both unprofitable companies into the black.

Working closely with six Palm IT executives and three Handspring counterparts huddled around the corporate whiteboard, Levinson had just four months to power through the following: analyze both companies' IT systems, identify redundant systems, understand post-merger business requirements, determine new infrastructure and systems for the merged company, develop a task list to support the plan and select team members to do the work.

Palm met its October 2003 deadline to combine all technology systems the day after shareholders approved the deal. Why did it all go so smoothly? From the start, Levinson says, Palm made the acquisition a priority for both the IT and business sides of each company. The IT departments for both organizations worked closely together during what they called a "preliminary integration exercise," to create a thorough inventory of the staff and programs each company brought to the table.

Soon, "We were on one system to enter orders, ship products and answer any questions around our financials," says Levinson, an IT veteran who had worked on 16 prior merger deals at



Palm and other companies. "The company was forced to function as one."

PalmOne, the name of the newly formed company, along with this year's group of CIO 100 honorees, shared one important characteristic during the merger and acquisition process: a commitment to agility. Their executives understand that agility is crucial to making the difficult M&A process work for the company and, ultimately, for its shareholders. CIOs who understand the need for speed when combining with another company cut staff wisely, emphasize training, follow a plan for integrating systems and use standard procedures. In doing so, they avoid the problems that

the United States to compete with those who sell rival equipment; The South Financial Group, which acquires banks to expand its geographic footprint; and tool-making giant Kennametal, which acquires companies to defend its turf and roll out products in new markets.

### Make Smart Staffing Decisions

After a merger, it's an inevitable truth that at least some systems and programs will be deemed redundant or unnecessary—and will be cut. That means hard decisions about retaining and eliminating staff. To protect the morale of the employees left behind and to

### Agility in Action

- Compiling a list of 3,000 standard tasks necessary to integrate acquisitions reduced the integration period by 60 days
- Sending trainers to new employees and using online aids, rather than making employees travel for training, brought the new sales force up to speed in four months

the evaluation. The evaluation process started immediately after the acquisition and was wrapped up in three months.

Sometimes losing key people is inevitable during an acquisition, Kennametal Vice Pres-

Immediately following the merger of Palm and Handspring, "We were on one system to enter orders, ship products and answer any questions around our financials. The company was forced to function as one."

—palmOne CIO Marina Levinson

soothe frayed nerves during the transition process, these cuts should be made as quickly as possible. But in the process, companies have to avoid laying off people who have knowledge and skills that could be crucial to the company's future.

Immediately after Kennametal bought rival Widia GmbH in September 2002, its IT department conducted three months of formal employee interviews. Kennametal, a \$1.8 billion toolmaker based in Latrobe, Pa., used an evaluation system to measure the skills of prospective new hires. The company ended up eliminating about two-thirds of Widia's 1,500 employees. (In IT, the company kept employees who supported desktops or servers at local offices, but laid off others who supported back-office applications or warehouses, which would be consolidated and managed globally by headquarters.) The review process focused not only on technical skills, but also on attitude and aptitude; employees who were eager to learn, willing to change and able to show leadership abilities were given high marks in

ident and CIO Ralph G. Niederst admits. The only thing the company can do in these cases is move to replace a key employee immediately or, if necessary, start a retention program to keep other key employees from following a departing exec. Above all, Niederst says constant communication is required to keep employees calm during this important process. "[We're] always letting everyone know where we are in the process," he says.

Within two months of the June announcement of the acquisition, Palm and Handspring employees were told whether they'd have jobs at the new combined palmOne, Levinson says. Handspring's R&D, sales and marketing staffs were considered crucial to the combined company, and those jobs remained largely intact. One clearly overstaffed area was IT infrastructure. Palm already outsourced 70 percent of its infrastructure support services—including management of the company's desktops, help desk and data center—to services giant EDS. Handspring insourced these tasks. Because Handspring would be moved



typically sabotage scores of past deals. (A 2001 KPMG study, for example, claimed that 70 percent of M&A deals fail to deliver shareholder value, and 31 percent actually destroy value because of too much focus on closing a deal and too little focus on making it succeed.)

What follows are some details of the best practices used by this year's honorees—including palmOne; Toshiba America Business Solutions, which buys copy machine dealers across



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## If your IT spending isn't aligned with the business strategy, you've failed the company.

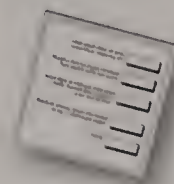
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from its Oracle system over to Palm's SAP back-office systems, employees who supported Oracle were cut quickly. In total, palmOne was able to cut 13 IT jobs as part of an overall companywide goal to whittle 125 positions, Levinson says. Even those who were notified that they would be laid off stayed through the integration, accepting a pay package that hinged on meeting certain integration goals before they left.

### Training After the Merger

After critical decisions are made about who stays and who goes, a company needs to quickly retrain the remaining employees. Companies that lag on training risk increasing the time it takes to reap any payoff from a merger. Toshiba America Business Solutions, a privately held subsidiary of Japan-based Toshiba, moves fast in this area because retraining is part of its strategy to boost sales.

When the Irvine, Calif.-based company acquires a competing copy machine dealer, company Senior Vice President, CIO and CFO Dan Langham wants the acquired dealers' sales teams retrained immediately so that they can learn the unique attributes of Toshiba's equipment versus that of its rivals. Langham also says he has learned that quickly providing sales-force training on the new systems after an M&A tends to keep the sales force in place; once they learn the new system, salespeople can sell faster and get their commissions faster.

After a January 2004 acquisition of Rochester, N.Y.-based Business Methods, for example, four Toshiba training managers flew to the dealership to retrain employees using the company's SWAT program, which stands for Special Weekly Acquisition Training. With SWAT, Toshiba trainers come to employees instead of sending them off to far-flung Toshiba classrooms, a process that used to take a year. Now, the group logs on using PlaceWare Web conferencing and Web tools to get up to speed on Toshiba's product line, services and corporate policies. Before, during and after each training session, employees complete pass/fail tests online, and results are e-mailed immediately to their managers. Within two months,



all 75 Business Methods salespeople completed training, Langham says. Within four months, they were selling nothing but Toshiba products—everything from \$1,300 lower-end copiers to \$50,000 deluxe models.

Like Toshiba, Kennametal considers training a near religion. When the company bought Widia, its goal was to quickly train the 600 Widia system users to use Kennametal's global SAP system. A team of 25 Kennametal SAP business-process experts and more than 60 trained Kennametal SAP users were assigned to the project. The company ran mini-universities throughout Europe, where all Widia users trained throughout the holidays in December through January 2003, logging a total of 3,500 classroom hours to navigate the system online. After training, the employees signed off that they were able to navigate and understand the system. Getting the signature might be just a formality, but it's a way to check whether every user—down to the lowest-level employee on the system—is taking responsibility for learning his or her job quickly, Niederst says. "Agility is a mind-set," adds

Stephen Schuchertis, director of global application development at Kennametal.

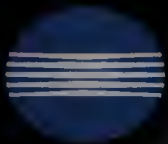
### Focus on Integration

Agile companies make better use of teamwork, put a high priority on testing applications before they go live and honor deadlines.

Widia, which has 19 sites in 10 European countries, had been running SAP 3.1—a very old version of SAP. Kennametal used its own SWAT-type team to accelerate integration as Widia switched over to Kennametal's SAP 4.6c system. Kennametal's top management wanted Widia running SAP 4.6 for finance, shipping, warehousing, sales, HR, manufacturing and distribution applications within five months after the acquisition. "In the first three weeks we put a SWAT team in there," Niederst says. Together, the SWAT team—composed of executive management, process experts in IT and key SAP users from Kennametal's business units—defined the business requirements of the project, built the new processes for the combined system and oversaw testing.

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Kennametal's SAP system, Kennametal relentlessly tests all the business processes involved in filling an order as well as how order information passes through the Kennametal system. "We get 70 to 80 people—from the order entry taker to a shipper with a bar code," CIO Niederst says. "We simulate 1,200 to 1,500 test scripts."

Since these are processes that trainees have already used during simulated solutions in the classroom environment, they are prepared to troubleshoot problems. "As you run through, errors occur and we resolve them during this test," Niederst says. Kennametal ran these tests over a one-week period at four of its European training centers and one U.S. center before taking its Widia users live. The tests help employees understand who is ahead of them and who is behind them in the tool sales process.

At palmOne, Levinson represented the company as a member of the Program Management Office: a steering committee of executives who managed the integration. The committee appointed business teams that focused on every aspect of the enterprise, such as finance or supply chain. Each team included an IT representative. "We had IT people involved with discussions early on who understood how we were going to run the company post-merger," Levinson says. "We had a separate infrastructure team focused on integration too."

Levinson brought in a contracted project manager to oversee the integration plan, conduct status reports and resolve problems. The integration team sped up the process by deciding against converting five-year-old Handspring's historical sales and manufacturing data to Palm's systems. Instead, several employees set up Handspring's master data and moved all pending Handspring sales and vendor data over to Palm's SAP system within three weeks. The company keeps archived data on hand on a server in case it's needed.

As palmOne knows, it also helps to keep a scrupulous list of standard tasks while integrating two companies. In 2002, The South Financial Group, a Greenville, S.C., bank

holding company, wrote a five-year plan that included a list of 3,000 tasks the bank would tick off during every merger. The task list cites, for example, when the HR department needs to have insurance cards in new employees' hands, when the loan department must go through a data verification process or when finance has to add the acquired company's fixed assets to the bank's register. That task list,

sales came from an aging product line. Today, 40 percent of this industry leader's sales come from products rolled out within the past five years.

In the meantime, palmOne, partly by getting all its Handspring integration work done within four months, is seeing financial success. The company's fourth quarter sales for the 2004 fiscal year were up nearly 23 per-

## The bulk of Kennametal's sales came from an aging product line. Today, 40 percent comes from products rolled out in the past five years.

managed using intranet-based software the company customized, helps save money and time, says South Financial's Executive Vice President and Director of Information Services Quintin Sykes. "It cut a good 60 days out of the process," Sykes says. "It probably cut out 60 percent of the work." The new process replaces an old method wherein individual department managers in, say, loans or HR came up with their own task lists, which often overlapped because departments were trying to work out the same issues.

The new system logs deadlines to get specific work done and alerts department managers when they are lagging behind. "We use a 90-day timetable," says John DuBose, president of the bank's technology group, noting that the August 2002 integration of Mercantile Bank was finished within 90 days. "We lay out what we want, how we want it and where we want it."

### Reap the Rewards

Success for CIO 100 honorees is reflected in the numbers: sales, market share and units sold. Thanks to faster acquisitions, Kennametal is rolling out new products at a faster clip than ever. In 2001, the bulk of its

cent over the same quarter a year ago, to \$267.3 million. PalmOne also went into the black for the quarter, reporting net income of \$13.3 million. The company still showed a loss for the year of \$21.8 million, but that was a big improvement from the \$442.6 million loss reported for fiscal year 2003.

Toshiba America Business Solutions now routinely absorbs acquisitions in 60 days—a 66 percent improvement. Depending on the size of the acquisitions, this accelerated transition can create incremental upstream manufacturing profit for Toshiba in excess of \$2 million. South Financial credits its five-year plan—which helps shave months from the time it takes to acquire a company—with increasing the bank's assets from \$3 billion in 1999 to \$11 billion today.

All of these success stories weave a common thread: They wouldn't have been written had these companies not committed to the concept of agility. PalmOne's Levinson embraced agility to beat the ticking clock. So can your company. **CIO**

Kim Girard, a freelance writer based in San Francisco, can be reached at [kimberg30@yahoo.com](mailto:kimberg30@yahoo.com). Send feedback to [letters@cio.com](mailto:letters@cio.com).



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# Competition

THE CHALLENGE

BY THOMAS WAILGUM

## Golden Gate University *Anthony Hill, CTO*

GOLDEN GATE UNIVERSITY (GGU) caters primarily to the adult working professional, with degrees in law, taxation, business and technology. Throughout the 1990s, GGU had experienced a year-over-year decline in enrollment in the crowded California graduate school market. President Phillip Friedman launched a turnaround plan in 2000 aimed to reinvigorate academic programs, boost enrollment and return the school to profitability.



"During my first 90 days, there were some serious network outages. But my phone didn't ever ring. That's how discouraged Golden Gate was with technology in 2001."

-ANTHONY HILL

**Agile Business Response:** Raising the bar for GGU's academic programs depended largely on the integration of an online component into all business and education programs, plus improving existing technology services, such as campus e-mail. The university put together cross-functional teams that focused on reengineering administrative, recruiting, customer service and technology functions.

**Agile IT Enablers:** Staring at a legacy IT infrastructure and no additional funding, CTO Anthony Hill (with full backing from Friedman) began unifying GGU around a comprehensive e-business strategy. This involved deploying a new standards-based architecture using open-source platforms such as Linux, J2EE and Apache. That in turn allowed a major IT consolidation, including operating systems (from six to two), hardware platforms (five to one), databases (six to two), ERP applications (three to one) and websites (29 to one). The university's total cost of ownership for IT was subsequently reduced, while service improved. Network and e-mail availability alone went up by 99 percent. GGU is now achieving semester-by-semester growth in student enrollment.

## Chicago Board of Trade *William Farrow, Executive VP and CIO*

EUREX, the world's largest futures and futures options exchange, announced in 2003 that it would enter the lucrative Chicago market. Eurex had gained its preeminence on the strength of its electronic trading platform, which was proving more efficient for many types of trades than the Chicago Board of Trade's (CBOT) face-to-face "open auction" trading floor.

### **Agile Business Response:**

When Eurex began its move into the U.S. market, the CBOT sought to make its trading technology better and cheaper by partnering with other exchanges. The CBOT began using Liffe Connect, an electronic trading platform owned by Euronext.liffe, a European consortium that competed with Eurex. The new CBOT platform has enhanced trading capabilities, increased speeds and improved reporting. For back-office operations, the CBOT joined with the Chicago Mercantile Exchange (CME) to create the CME/CBOT Common Clearing Link, which provides operating, margin and capital efficiencies. The Common Clearing Link is now used to clear 85 percent of the daily U.S. futures and futures options volume.

"In some sense, when you are an agile IT organization, you are a victim of your own success. You now have to operate under the best-case scenario instead of the worst-case scenario."

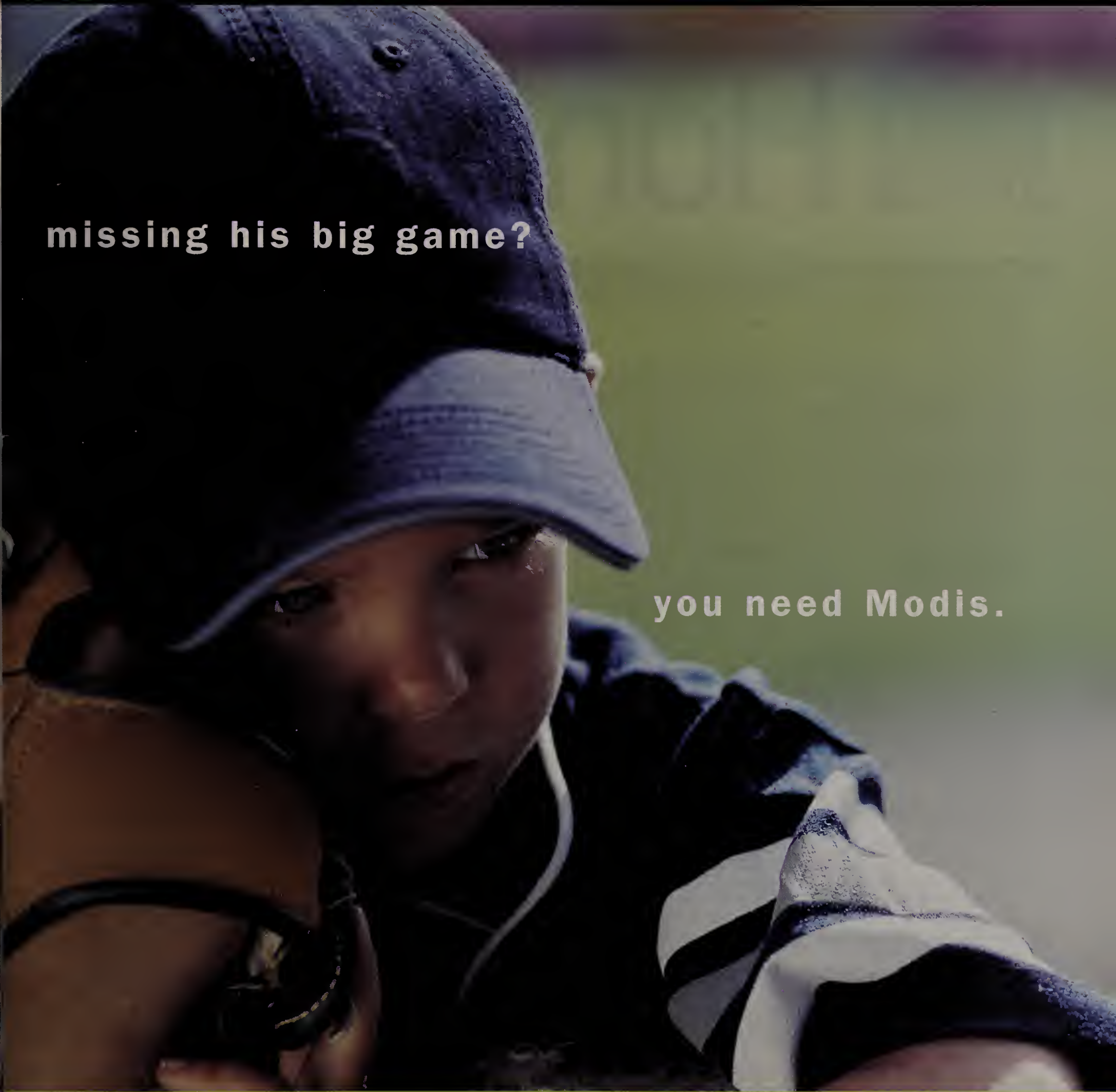
-WILLIAM FARROW

**Agile IT Enablers:** A revamped IT organization allowed the CBOT to make the January 2004 transitions to Liffe Connect and the Common Clearing Link without incident. When Executive VP and CIO William Farrow arrived in



2001, he says he found 90 percent of the CBOT's infrastructure "end of life." And IT had completed just four projects in 10 years. Since, IT has upgraded the CBOT's infrastructure and stabilized the operating environment, completing nearly 90 projects in 2003 alone. To increase enterprise agility, subject-matter experts are deployed across the IT group. For example, an architect in one IT group can go to another to provide advice in trade clearing, electronic trading or open auction systems.





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Employees: 123,000

### Raytheon Co.

Waltham, Mass.  
www.raytheon.com  
Manufacturing visualization tool developed by IT to meet a government request for near-real-time shop floor metrics also improved its production rate. Rebecca R. Rhoads, VP and CIO  
William H. Swanson, Chairman and CEO  
FY03 revenue: \$18.1 billion  
Employees: 78,000

## AUTOMOTIVE MANUFACTURING

### DaimlerChrysler

Auburn Hills, Mich.  
www.daimlerchrysler.com  
Digital information links between product development and manufacturing increased vehicle quality, manufacturing flexibility and productivity. Susan J. Unger, Senior VP and CIO  
Jürgen E. Schrempp, Chairman of the Board of Management and CEO  
FY03 revenue: \$171.9 billion  
Employees: 362,063

### Delphi Corp.

Troy, Mich.  
www.delphi.com  
Improved internally developed Web portal to boost usage by auto parts suppliers from less than 10 percent to almost 100 percent. Data mining is accessible by PDA. Bette Walker, VP and CIO  
J.T. Battenberg III, Chairman, CEO and President  
FY03 revenue: \$28 billion  
Employees: 190,000

### General Motors Corp.

Detroit  
www.gm.com  
Cost flexibility enabled by 95 percent outsourced IT labor that is managed by unique matrix of process information officers and business process officers. Ralph Szygenda, Group VP and CIO  
G. Richard Wagoner Jr., Chairman and CEO  
FY03 revenue: \$185.5 billion  
Employees: 338,000

## BANKING/ INVESTMENT

### Fannie Mae

Washington, D.C.  
www.fanniemae.com  
Service-oriented architecture and shared data services enabled management of a huge increase in assets without increasing IT staff and a sharply reduced time-to-market for new mortgage products. Julie St. John, Executive VP and CIO  
Franklin D. Raines, Chairman and CEO  
FY03 revenue: \$53.8 billion  
Employees: 5,201

### The Huntington National Bank

Columbus, Ohio  
www.huntington.com  
Service-oriented architecture enables reuse of business functions, lowering development costs by 90 percent while speeding delivery. Leadership training sessions held for IT managers. Joseph A. Gotttron II, Executive VP and CIO  
Thomas E. Hoaglin, Chairman, President and CEO  
FY03 revenue: \$372.4 million  
Employees: 8,500

### The Massachusetts Housing Finance Agency

Boston  
www.masshousing.com  
Extranet for online transactions improved and lowered the cost of the loan approval process, resulting in growth of loan pipeline in a difficult market. Extranet extended to offer mortgage insurance products and network lenders. Dave O'Connor, Director of IT  
Thomas R. Gleason, Executive Director  
FY03 revenue: \$58.9 million  
Employees: 315

### Merrill Lynch & Co.

New York City  
www.ml.com  
Cost transparency initiative launched to improve management of common IT utilities among businesses. Customizable GUI developed to encompass all front-end trading applications increased revenue from cross-selling products. John W. Cummings, Senior VP, Chief Information Services Officer and Head of Global Technology and Services  
Stan O'Neal, Chairman, Chief Executive and President  
FY03 revenue: \$20.2 billion  
Employees: 48,100

### The PNC Financial Services Group

Pittsburgh  
www.pnc.com  
Nearly 3,800 branch and phone center personnel retrained in five months in response to new federal regulations. New teller system rolled out in eight months with full payback in one year. Timothy G. Shack, CIO, Group Executive  
James E. Rohr, Chairman and CEO  
FY03 revenue: \$5.3 billion  
Employees: 23,000

### Security Benefit Group

Topeka, Kan.  
www.securitybenefit.com  
Adoption of extreme programming methodology lowered development costs and time line by 25 percent. Business analysts rather than programmers set up 11 new fixed annuity products during a 48-hour period, with product testing completed in eight weeks. Dave Keith, Senior VP and CIO  
Kris Robbins, President and CEO  
FY03 revenue: \$338.8 million  
Employees: 561

### The South Financial Group

Greenville, S.C.  
www.thesouthgroup.com  
Project methodology for mergers and acquisitions supports integration, branding and other conversion processes in 45-60 days. Scalable systems instrumental to growth from \$3 billion in assets to \$11 billion in five years. Quintin Sykes, Executive VP and Director of IS  
John DuBose, President of the Technology Group  
FY03 revenue: \$510 million  
Employees: 2,200

### Southwest Bank of Texas

Houston  
www.swbanktx.com  
E-business consultancy created and implemented customer e-commerce. High call volume and website activity handled within existing disaster recovery facility, avoiding the purchase of additional bandwidth. Buddy Cox, Executive VP and CTO  
Paul Murphy, CEO  
FY03 revenue: \$326 million  
Employees: 1,800

### T. Rowe Price Group

Baltimore  
www.troweprice.com  
Investment rollover product developed by skunk-works team in 30 days, reusing existing components from other company systems. Michael A. Goff, President, T. Rowe Price Investment Technologies  
George A. Roche, Chairman and President  
FY03 revenue: \$996 million  
Employees: 3,862

Company information provided by honorees in their award applications. For an alphabetical list of all honorees, see Page 104.



### The Vanguard Group

Valley Forge, Pa.

[www.vanguard.com](http://www.vanguard.com)

A "Swiss Army" of employees, including IT staffers and the CEO, answers customer calls during high volume times. Java and XML allow use of custom applications and hardware platforms in multiple operating systems without changing code.

Tim Buckley, Managing Director of IT

John J. Brennan, CEO

FY03 revenue: NA

Employees: 10,000

## BUSINESS/ CONSUMER SERVICES

### Axiom Corp.

Little Rock, Ark.

[www.axiom.com](http://www.axiom.com)

Grid computing applied to data management enterprise, vastly increasing processing efficiency and lowering costs without a single failure, thereby allowing clients buying customer information to acquire computing power inexpensively and incrementally.

Alex Dietz, CIO

Charles D. Morgan, Company Leader

FY03 revenue: \$958.2 million

Employees: 5,500

### American International Relocation Solutions

Pittsburgh

[www.airelo.com](http://www.airelo.com)

Transitioned over three years from conducting only residential moves to offering more than 30 relocation services worldwide. Full chain automation allows initiation of relocation services within hours. Open architectures and standards used to develop IT systems.

Jey Baskar, Director of IS

Bryan Putt, CEO

FY03 revenue: \$50 million

Employees: 120

### Getty Images

Seattle

[www.gettyimages.com](http://www.gettyimages.com)

Image bank uses ASP model for customer websites in which IT manages components of the content delivery, contributing to revenue growth of 41 percent in 2003.

Lisa Tuttle, Acting Senior VP of Technology

Jonathan Klein, Founder and CEO

FY03 revenue: \$523 million

Employees: 1,800

### iJET Travel Risk Management

Annapolis, Md.

[www.ijet.com](http://www.ijet.com)

Added long-term, security risk management business line at the end of Iraq war to supplement business intelligence focus and quickly acquired a dozen new, multibillion-dollar clients.

Greg Meyer, CTO

Bruce McIndoe, Chairman and CEO

FY03 revenue: \$1.3 million

Employees: 60

### Korn/Ferry International

Los Angeles

[www.kornferry.com](http://www.kornferry.com)

Three major technology-enabled business offerings were created using IT enterprise architecture and reusable software components as IT headcount was reduced from 100 to 30.

Dan Demeter, CIO

Paul Reilly, CEO

FY03 revenue: \$338.5 million

Employees: 1,471

### Little Diversified Architectural Consulting

Charlotte, N.C.

[www.littleonline.com](http://www.littleonline.com)

IT staff works directly for clients during building design and construction to plan their network and cabling infrastructure.

Chris France, CIO

Philip A. Kuttner, CEO

FY03 revenue: \$40 million

Employees: 245

### Manpower

Milwaukee

[www.manpower.com](http://www.manpower.com)

Internet ordering capability for staffing services championed by IT generated \$3 million in new revenue. Pricing wizard built in one month with Web services.

Peter Stockhausen, CIO for North America

Jeffrey A. Joerres, Chairman and CEO

FY03 revenue: \$12.2 billion

Employees: 25,000 (full-time)

### Worldspan

Atlanta

[www.worldspan.com](http://www.worldspan.com)

Enterprise gateway cluster serving all travel clients increased software distribution and cut costs. Portfolio management integrated with strategic planning and budgeting process.

Sue Powers, CIO and Senior VP,

Worldwide Product Solutions

Rakesh Gangwal, Chairman,

President and CEO

FY03 revenue: \$896.9 million

Employees: 2,530

## COMMUNICATIONS

### Intelsat

Pembroke, Bermuda

[www.intelsat.com](http://www.intelsat.com)

In transformation from flat-rate and treaty-based satellite communications to for-profit, market-driven telecommunications services, business intelligence initiative identified \$150 million in saleable network capacity and improved free cash flow by 15 percent.

Joseph Kraus, Senior VP and CIO

Conny L. Kullman, CEO

FY03 revenue: \$952.8 million

Employees: 900

### SBC Communications

San Antonio

[www.sbc.com](http://www.sbc.com)

Portfolio management utilized to shift more than \$60 million in project budgets to higher priorities. Application Rapid Deployment process for 316 types of low-risk, repeatable IT solutions increased IT staffer productivity by 49 percent.

John Stankey, CIO and Senior Executive VP

Edward E. Whitacre Jr., Chairman and CEO

FY03 revenue: \$40.8 billion

Employees: 175,400

### Verizon Wireless

Bedminster, N.J.

[www.verizonwireless.com](http://www.verizonwireless.com)

Web services platform speeds product to market. Reverse bidding system for consultants reduced costs by 30 percent and decreased the time it took to fill open positions.

Roger Gurnani, CIO

Denny Strigl, CEO

FY03 revenue: \$22.5 billion

Employees: 43,000

## COMPUTER MANUFACTURING

### Dell

Round Rock, Texas

[www.dell.com](http://www.dell.com)

Customized application interfaces with the data warehouse to provide a user-friendly front end that allows all Dell employees to query the warehouse with complex ques-

tions. A four-tier architecture mixes standard and open-source software to reduce technology lifecycle costs.

Randy Mott, Senior VP and CIO

Michael S. Dell, Chairman

FY03 revenue: \$41.4 billion

Employees: 46,000

### Hewlett-Packard Corp.

Palo Alto, Calif.

[www.hp.com](http://www.hp.com)

Global operations and IT combined to integrate supply chain and e-business with IT. Business-to-employee portal standardized HR function worldwide, saved \$50 million with a six-month ROI and provided a platform for internal financial data reporting.

Gilles Bouchard, Executive VP of Operations and CIO

Carly S. Fiorina, CEO and Chairman

FY03 revenue: \$73.1 billion

Employees: 142,000

### palmOne

Milpitas, Calif.

[www.palmone.com](http://www.palmone.com)

On the first day of the merger between Palm and Handspring, this new company operated as a single entity with merged ERP, finance, supply and HR systems and combined communications systems.

Marina Levinson, VP and CIO

Todd Bradley, President and CEO

FY03 revenue: \$871.9 million

Employees: 740

## EDUCATION

### Fairfax County Public Schools

Fairfax, Va.

[www.fcps.edu](http://www.fcps.edu)

Student-teacher collaboration portal is used by 90,000 students, including hospitalized students. Moved from spaghetti architecture to a service-oriented architecture through a brokered integration platform and Web services.

Maribeth Luftglass, CIO

Dr. Brad Draeger, Interim Superintendent of Schools

FY03 revenue: \$1.7 billion

Employees: 24,523

### Golden Gate University

San Francisco

[www.ggu.edu](http://www.ggu.edu)

Enabled turnaround effort with a project portfolio and governance structure for 48 academic and operations projects.



Reduced routine use of consultants by upgrading IT staff skills through a career development program.

Anthony Hill, CTO  
Phillip Friedman, President  
FY03 revenue: \$55 million  
Employees: 1,500

### Harvard Business School

Boston  
[www.hbs.edu](http://www.hbs.edu)  
Drew on existing resources to build new Web-based application for faculty research and course planning that launched in three weeks.  
Judy Stahl, CIO  
Kim Clark, Dean of the Faculty  
FY03 revenue: \$294 million  
Employees: 1,273

### Tufts University

Medford, Mass.  
[www.tufts.edu](http://www.tufts.edu)  
Open-source digital repository aggregates content from library systems, enabling rapid development of educational and research applications and garnering \$2 million in support. GIS initiatives enhance teaching and research.  
Bruce Metz, VP for IT  
Lawrence Bacow, President  
FY03 revenue: \$519.9 million  
Employees: 3,887

### University of Pennsylvania

Philadelphia  
[www.upenn.edu](http://www.upenn.edu)  
Web-based "purchase to pay" ordering system marries purchasing responsibility, authority and automatic budget check for 1,800 faculty and staff. PennKey gives secure access for 40,000 to 190 online services.  
Robin Beck, VP  
Amy Gutmann, University President  
FY03 revenue: \$3.6 billion  
Employees: 12,000

### Ventura Unified School District

Ventura, Calif.  
[www.ventura.k12.ca.us](http://www.ventura.k12.ca.us)  
Gigabit Ethernet connections in all classrooms used for class work and student information. VoIP telephones allow teachers to move classrooms easily but retain phone numbers.  
Theodore Malos, Director of Technology  
Dr. Trudy Arriaga, Superintendent  
FY03 revenue: \$150 million  
Employees: 1,800

## ENTERTAINMENT/ TRAVEL/MEDIA

### CKE Restaurants

Carpinteria, Calif.  
[www.ckr.com](http://www.ckr.com)  
Built POS system in-house, saving more than \$1 million in vendor costs. Operating at the continuously improving CMM level, the IS department reduced annual operating costs by 38 percent, earning citation from the CEO as having transformed from "worst of company" to "first in company."  
Jeff Chasney, Executive VP and CIO  
Andrew Puzder, CEO  
FY03 revenue: \$1.4 billion  
Employees: 29,000

### Harrah's Entertainment

Las Vegas  
[www.harrah.com](http://www.harrah.com)  
Fast response to fires that knocked out telecommunications in much of southern California brought a casino online two days before normal utilities were available, avoiding \$10 million in lost revenue.  
Tim Stanley, Senior VP and CIO  
Gary Loveman, President and CEO  
FY03 revenue: \$4.3 billion  
Employees: 43,000

### Marriott International

Washington, D.C.  
[www.marriott.com](http://www.marriott.com)  
Upgraded reservation system guarantees the best available room rate regardless of booking channel. Corporate CRM system integrated with each hotel's property management system, ensuring personalized service.  
Carl Wilson, Executive VP and CIO  
J.W. Marriott Jr., Chairman of the Board and CEO  
FY03 revenue: \$9 billion  
Employees: 128,000

### The National Broadcasting Co.

New York City  
[www.nbc.com](http://www.nbc.com)  
"TV station in a box" server concept enables fast setup of remote news bureaus. Bravo acquisition migrated to a new integrated platform, leading to a doubling in net revenue. SWAT team developed election results system in less than six months.  
David Overbeeke, Executive VP and CIO  
Bob Wright, Vice Chairman and Executive Officer, GE; Chairman and CEO, NBC  
FY03 revenue: \$6.7 billion  
Employees: 6,000

### The New York Times Co.

New York City  
[www.nytc.com](http://www.nytc.com)  
Flexible supply chain enables printing and distribution of various newspapers in markets across the country. Regionalization of online ads supports market share in local communities.  
Michael G. Williams, CIO  
Russell T. Lewis, CEO  
FY03 revenue: \$3.2 billion  
Employees: 12,400

### Ruby Tuesday

Maryville, Tenn.  
[www.rubytuesday.com](http://www.rubytuesday.com)  
Alert system grows help desk from 12 staffers to 100 seats. IT org chart lists 90 percent of staffers as analysts, allowing frequent shifts in responsibility.  
Nick Ibrahim, Senior VP and CTO  
Sandy Beall, Chairman of the Board and CEO  
FY03 revenue: \$914 million  
Employees: 38,000

### Warner Music Group

New York City  
[www.wmg.com](http://www.wmg.com)  
Music digitization process utilized to provide legal music downloads and launch ringtones, 500,000 of which are downloaded per month, helping to double company's market share.  
Tsvi Gal, CIO  
Edgar Bronfman, Jr., Chairman and CEO  
FY03 revenue: NA  
Employees: 4,500

## FINANCIAL SERVICES

### Chicago Board of Trade

Chicago  
[www.cbot.com](http://www.cbot.com)  
Seamlessly transitioned to a new electronic trading platform, leading to high trading volumes and paving the way for new financial instruments.  
William Farrow, Executive VP and CIO  
Bernard Dan, President and CEO  
FY03 revenue: \$381.3 million  
Employees: 703

### CompuCredit

Atlanta  
[www.compucredit.com](http://www.compucredit.com)  
New portfolio of credit card accounts serviced in 60 days—half the time of previous portfolios. XML-based Business Information Gateway accelerated

collections efforts.  
Guido Sacchi, CIO and Executive Director of Shared Services  
David Hanna, CEO  
FY03 revenue: \$453.8 million  
Employees: 2,200

### GMAC Commercial Holding Corp.

Horsham, Pa.  
[www.gmaccm.com](http://www.gmaccm.com)  
Excess capacity in IT infrastructure enables fast additions of new customers, portfolios and service lines. Integrated document management system spun off to recoup investment.  
Niraj Patel, Executive VP and CIO  
Robert Feller, CEO  
FY03 revenue: NA  
Employees: 3,300

### H&R Block

Kansas City, Mo.  
[www.hrblock.com](http://www.hrblock.com)  
Project managers staff a resource pool as internal consultants. New offices in 552 Wal-Marts set up within a 17-day deadline.  
Jeff Yabuki, Executive VP  
Mark Ernst, Chairman, President and CEO  
FY03 revenue: \$3.8 billion  
Employees: 11,200 (full-time)

### ProCard

Golden, Colo.  
[www.procard.com](http://www.procard.com)  
Skunk works used to develop new Web-based flagship product in five months. Web services credit card processing technology developed in less than six months.  
Ian Hill, CIO  
Bruce Baude, President and CEO  
FY03 revenue: \$23.4 million  
Employees: 145

## GOVERNMENT

### City of Baltimore

Baltimore  
[www.baltimorecity.gov](http://www.baltimorecity.gov)  
Enterprise CRM system enables "one call to City Hall" initiative for service requests. Real-time performance measurement system tracks success on dashboards. All IT staff completed 40-hour-plus Project Management Institute course.  
Elliot Schlanger, CIO  
Martin O'Malley, Mayor  
FY03 revenue: \$2.2 billion  
Employees: 15,385



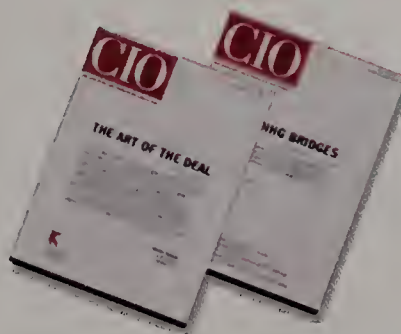
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### City of Chandler

Chandler, Ariz.  
[www.chandleraz.gov](http://www.chandleraz.gov)  
Project management office implemented 22 new technologies within 18 months, increasing user satisfaction by 75 percent. Online vendor registration for city services achieved full participation.  
Marilyn Delmont, CIO  
W. Mark Pentz, City Manager  
FY03 revenue: \$607.4 million  
Employees: 1,512

### Defense Logistics Agency

Fort Belvoir, Va.  
[www.dla.mil](http://www.dla.mil)  
In Iraq war: RFID tags in matériel, on-scene IT support, pack-up kits and a Web-based version of standard distribution system reduced duplicate orders by more than 80 percent compared to the first Gulf War.  
Mae De Vincentis, Director of Information Operations and CIO  
Vice Adm. Keith W. Lippert, Director of Supply Corps, U.S. Navy  
FY03 revenue: \$25 billion  
Employees: 21,500

### Greater Toronto Airports Authority

Toronto  
[www.gtaa.com](http://www.gtaa.com)  
Common-use IT infrastructure owned by airport links all airlines and gates, replacing private networks, enabling quick shifts and optimizing traffic flow. Traffic management system a common rule base for assigning airport resources.  
James Burke, VP of IT and Telecommunications  
Louis A. Turpen, CEO  
FY03 revenue: \$472.7 million  
Employees: 896

### Naval Facilities Engineering Command

Washington, D.C.  
[www.navfac.navy.mil](http://www.navfac.navy.mil)  
Composite application strategy for enterprise—pursued in lieu of enterprise ERP or custom solution—developed in 10 months. Same application engine reused to streamline contract management.  
Capt. Daniel P. King, CIO  
Rear Adm. Michael K. Loose, Chief of Civil Engineers  
FY03 revenue: \$8 billion  
Employees: 14,000

### Oakland County, Michigan

Pontiac, Mich.  
[www.co.oakland.mi.us](http://www.co.oakland.mi.us)  
After major budget cut, technology infrastructure enabled balanced budget, no layoffs and AAA bond rating. Crime information network shared by more than 150 agencies.  
Phil Bertolini, Director of IT  
L. Brooks Patterson, County Executive  
FY03 revenue: \$590 million  
Employees: 4,424

### UNICEF (United Nations Children's Fund)

New York City  
[www.unicef.org](http://www.unicef.org)  
Fly-away VSAT satellite stations deployed in less than three hours to deliver voice, fax, data, e-mail and videoconferencing in remote locations, saving lives in disaster areas.  
Andre Spatz, CIO  
Carol Bellamy, Executive Director  
FY03 revenue: \$1.7 billion  
Employees: 7,000

### U.S. Government Accountability Office

Washington, D.C.  
[www.gao.gov](http://www.gao.gov)  
Strategic business model helps execute more than 1,000 executive branch activity reviews, accounting for \$35.4 billion in taxpayer benefits.  
Anthony Cicco Jr., CIO and Deputy Chief Administrative Officer  
David M. Walker, Comptroller General of the United States  
FY03 revenue: \$457 million  
Employees: 3,370

## HEALTH CARE/ HEALTH INSURANCE

### American Society of Health-System Pharmacists

Bethesda, Md.  
[www.ashp.org](http://www.ashp.org)  
Online placement service created in less than nine months to protect market niche. Continuing education services moved online in less than one year.  
John C. Spencer Jr., VP and CIO  
Henri R. Manasse Jr., Executive VP and CEO  
FY03 revenue: \$36.5 million  
Employees: 220

### Anthem

Indianapolis  
[www.anthem.com](http://www.anthem.com)  
Health-care network built an entire service model for 72,000-customer account in less than 90 days. IT centers of excellence for key technologies, including e-business, contact centers and document management solutions.  
Jane E. Niederberger, Senior VP and CIO  
Larry C. Glasscock, Chairman, President and CEO  
FY03 revenue: \$16.8 billion  
Employees: 20,000

### Blue Cross & Blue Shield of Rhode Island

Providence, R.I.  
[www.bcbsri.com](http://www.bcbsri.com)  
Website focus increased traffic by 246 percent in one year while reducing application support budget. Emergency medical record system allows hospital emergency room personnel to view patient medical and claim data.  
David O. Zink, Senior VP of Administration and CIO  
James E. Purcell, Acting President and CEO  
FY03 revenue: \$1.9 billion  
Employees: 1,037

### Clarian Health Partners

Indianapolis  
[www.clarian.org](http://www.clarian.org)  
Physician order-entry system and intelligent alerting system notifies doctors when they deviate from industry-defined best practices. Centralized data repository and automated algorithms developed to respond to new donor transplant law. Department of Business Innovations serves as internal consultants.  
Tal Moise, VP of Business Innovations and co-CIO  
Marvin Pember, CFO  
FY03 revenue: \$2.1 billion  
Employees: 11,088

### Group Health Cooperative

Seattle  
[www.ghc.org](http://www.ghc.org)  
Workflow redesign allows care providers to see 20 percent more patients daily. Member website updated to include patient information and secure messaging with doctors.  
Janice Newell, CIO  
Cheryl Scott, President and CEO  
FY03 revenue: \$1.9 billion  
Employees: 9,532

### HealthMarket

Norwalk, Conn.  
[www.healthmarket.com](http://www.healthmarket.com)  
Evolutionary process known as "creeping elegance" employed for systems development. Standards-based, component-driven architecture enabled migration to open systems.  
Ed Zecchini, Executive VP and CTO  
Stephen F. Wiggins, Founder, Chairman and CEO  
FY03 revenue: \$90 million  
Employees: 133

### Hygeia Corp.

Miami Lakes, Fla.  
[www.hygeia.net](http://www.hygeia.net)  
Connectivity toolkit enabled online claims to grow from zero to 40 percent in one year. Client portal allows customers to work with their data directly.  
Rod Hamilton, CIO  
Virgil Bretz, CEO  
FY03 revenue: NA  
Employees: 75

### Lifespan

Providence, R.I.  
[www.lifespan.org](http://www.lifespan.org)  
Computerized Physician Order Entry initiative enabled by wireless network. New contract management application created \$17 million improvement in payments.  
Carole Cotter, Senior VP and CIO  
George Vecchione, President and CEO  
FY03 revenue: \$1.1 billion  
Employees: 10,231

## INSURANCE

### Allstate Insurance Co.

Northbrook, Ill.  
[www.allstate.com](http://www.allstate.com)  
More than 110,000 customized agent websites launched based on a single architecture. Auto Express program enables handling of fender-benders with no injuries or liability issues.  
Catherine S. Brune, Senior VP and CTO  
Edward M. Liddy, Chairman, President and CEO  
FY03 revenue: \$32 billion  
Employees: 40,000

### American International Group

New York City  
[www.aig.com](http://www.aig.com)  
Scalable systems and an open, flexible architecture based on the J2EE frame-



# Congratulations!

## You've Picked A Winner!

**CIO** magazine is again the proud recipient of the prestigious 2004 Grand Neal Award—two years in a row!—the top editorial honor granted to one publication from nearly 1,300 entries across all categories and circulation sizes. **CIO** also won Neal Awards for “Best Single Issue” and “Best Article.”

The Neal Award judges aren't the only ones who prefer **CIO** magazine. CIOs choose **CIO** as the one publication they rely on most for strategies and best practices for managing information technology.\*

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Often hailed for its preeminence as the “Pulitzer Prize of the business press,” the Neal Award is the business publishing industry's annual salute to individual editors for outstanding editorial excellence.

\*SOURCE: **CIO** READER PROFILE STUDY,  
MRI, SEPTEMBER 2003



**The Resource  
for Information  
Executives**



work create an integration-ready enterprise, absorbing 10 insurance acquisitions since 2001.

Mark S. Popolano, CIO  
Maurice R. Greenberg, Chairman and CEO  
FY03 revenue: \$81.3 billion  
Employees: 86,000

### Antares Management Solutions

Westlake, Ohio  
[www.antaressolutions.com](http://www.antaressolutions.com)  
Imaging technology optimizes health claims processes, including provider credentialing, claims data entry and claims correspondence. Insurance broker website brings together formerly diverse services.  
Ken Sidon, President  
Edward J. Hartzell, CEO  
FY03 revenue: \$70 million  
Employees: 700

### CNA Financial

Chicago  
[www.cna.com](http://www.cna.com)  
New claims management dashboard gives business managers real-time claims information. Data model consolidates business units' information. Fixed IT costs lowered from 70 percent to 50 percent in one year.  
John Golden, Executive VP and CIO  
Stephen W. Lilienthal, Chairman and CEO  
FY03 revenue: \$12 billion  
Employees: 12,000

### CUNA Mutual Group

Madison, Wis.  
[www.cunamutual.com](http://www.cunamutual.com)  
Products for credit union clients moved online, including a new database developed to protect against hiring risky staff that lowered the processing rate from three days to seconds.  
Rick R. Roy, CIO  
Michael B. Kitchen, President and CEO  
FY03 revenue: \$2.4 billion  
Employees: 6,000

### GMAC Insurance Management Corp.

Earth City, Mo.  
[www.gmacinsurance.com](http://www.gmacinsurance.com)  
Planning and Process Management Organization developed a project and portfolio management infrastructure to converge multiple policy management systems into a single system.  
Jerry Filler, CIO  
Gary Y. Kusumi, President and CEO  
FY03 revenue: \$1.3 billion  
Employees: 3,000

### The Guardian Life Insurance Co. of America

New York City  
[www.glic.com](http://www.glic.com)  
Offshore outsourcing model cut IT costs by 10 percent while maintaining at least 50 percent in-house employees, thereby avoiding loss of knowledge capital. Component-based architecture allows quick product launches.  
Dennis Callahan, Executive VP and CIO  
Dennis J. Manning, President and CEO  
FY03 revenue: \$7.7 billion  
Employees: 5,000

### Lincoln National Corp.

Philadelphia  
[www.lfg.com](http://www.lfg.com)  
Service-oriented architecture and Web services used to syndicate company content into client websites on demand and in real-time, tailored to client specifications.  
Jason Glazier, Senior VP, Chief Technology and E-Commerce Officer  
Jon A. Boscia, Chairman and CEO  
FY03 revenue: \$5.3 billion  
Employees: 7,854

### Pinnacol Assurance

Denver  
[www.pinnacol.com](http://www.pinnacol.com)  
Integrated application architecture, sharing a single corporate database, runs all core business areas. All software development handled in-house, enabling quick system changes in response to new regulations and business needs.  
Robert Norris, CIO  
Gary Pon, CEO  
FY03 revenue: \$487 million  
Employees: 530

## LEGAL SERVICES

### Foley & Lardner

Milwaukee  
[www.foley.com](http://www.foley.com)  
Popular client-specific extranet developed by three IT staffers with object-oriented architecture. Most requests for client-specific extranets implemented in two to 48 hours.  
Douglas D. Caddell, CIO  
Ralf-Reinhard Boer, CEO  
FY03 revenue: \$489.5 million  
Employees: 2,500

### Kirkpatrick & Lockhart

Pittsburgh  
[www.kl.com](http://www.kl.com)  
Client extranets can be set up within one hour. Standard technology infrastructure enabled the creation of a fully functioning replacement law office within days.  
Steven W. Agnoli, CIO  
Peter J. Kalis, Chairman of the Management Committee  
FY03 revenue: \$320 million  
Employees: 1,650

## MANUFACTURING/ PROCESS INDUSTRIES

### Alcoa

Pittsburgh  
[www.alcoa.com](http://www.alcoa.com)  
Alcoa Business System, based on the Toyota Production System, focuses on efficiency and continuous improvement to ensure lean business practices.  
Rudi P. Huber, VP of Global Business Services and CIO  
Alain J. P. Belda, Chairman and CEO  
FY03 revenue: \$21.5 billion  
Employees: 120,000

### The Dow Chemical Co.

Midland, Mich.  
[www.dow.com](http://www.dow.com)  
Five hundred interactive conference rooms reduced travel costs by \$143 million in one year. Structured methodology and best practices applied to more than 40 acquisitions and joint ventures worldwide since 2000.  
David E. Kepler, Corporate VP of Shared Services and CIO  
William S. Stavropoulos, Chairman of the Board and CEO  
FY03 revenue: \$33 billion  
Employees: 46,000

### Flextronics International

Singapore  
[www.flextronics.com](http://www.flextronics.com)  
Custom electronics manufacturer quickly shifts design, manufacturing and supply chain logistics of customers' products to different sites around the world based on changing demand and cost considerations.  
Mike Webb, CIO  
Michael Marks, CEO  
FY03 revenue: \$13.4 billion  
Employees: 80,000

### Griffith Laboratories

Alsip, Ill.  
[www.griffithlabs.com](http://www.griffithlabs.com)  
This food manufacturer quickly implemented a CRM system to improve retention of new customers. Decision tool developed to capture variables for lowering costs saved \$2 million.  
John McCarville, VP of IT-Worldwide  
Herve de la Vauvre, President and CEO  
Worldwide  
FY03 revenue: NA  
Employees: 2,833

### Kennametal

Latrobe, Pa.  
[www.kennametal.com](http://www.kennametal.com)  
Large European acquisition fully integrated in five months. E-commerce website launched in 100 days. Flexible, scalable, open systems architecture replaced proprietary mainframe environment.  
Ralph G. Niederst, VP and CIO  
Markos I. Tambakeras, President, Chairman and CEO  
FY03 revenue: \$1.8 million  
Employees: 13,590

### O.C. Tanner Co.

Salt Lake City  
[www.octanner.com](http://www.octanner.com)  
Agile software development methodology used to implement more than 1,000 business systems enhancements in one year. IT enhancements to manufacturing, supply chain and customer-facing processes reduced customer calls by half.  
David Berg, Senior VP and CIO  
Kent Murdock, President and CEO  
FY03 revenue: \$300 million  
Employees: 1,880

### Plug Power

Latham, N.Y.  
[www.plugpower.com](http://www.plugpower.com)  
Scalable, open systems enable custom functionality. More than 130 system modifications deployed by three IT staffers last year. Project performance data posted on intranet.  
Darryl J. Enfield, Director of IS  
Roger B. Saillant, CEO  
FY03 revenue: \$12.5 million  
Employees: 325





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  - 1GB DDR memory<sup>2</sup>
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- p-Class single phase power enclosure with 2 power supplies
- Mini bus bar kit
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## PHARMACEUTICALS

**Infinity Pharmaceuticals**

Cambridge, Mass.  
[www.ipi.com](http://www.ipi.com)  
 Web-based drug discovery software platform built in less than five months enables analysis of huge data sets.  
 Andrew Palmer, CIO  
 Steven Holtzman, President and CEO  
 FY03 revenue: NA  
 Employees: 100

**Millennium Pharmaceuticals**

Cambridge, Mass.  
[www.millennium.com](http://www.millennium.com)  
 Transformation from a research-oriented genomics company to a fully integrated biopharmaceutical company supported by IT staff, contractors and outsourcers.  
 Mark Hernon, VP, IT  
 Mark Levin, CEO and Chairman  
 FY03 revenue: \$433.7 million  
 Employees: 1,700

## RETAIL/WHOLESALE

**7-Eleven**

Dallas  
[www.7-eleven.com](http://www.7-eleven.com)  
 Business intelligence database collects 22 million records daily from across the enterprise, enabling a major cultural shift from focusing on past trends to forecasting future business opportunities.  
 Keith Morrow, VP of IS and CIO  
 James W. Keyes, President and CEO  
 FY03 revenue: \$10.9 billion  
 Employees: 30,140

**Chico's Retail Services**

Fort Myers, Fla.  
[www.chicos.com](http://www.chicos.com)  
 While supporting 139 new retail stores, IT replaced or upgraded entire infrastructure and mission-critical applications in 18 months, including communications, global sourcing, merchandise planning, pattern-making, distribution and logistics, financial systems and e-commerce.  
 Ajit Patel, CIO  
 Scott Edmonds, President and CEO  
 FY03 revenue: \$768 million  
 Employees: 5,500

**Lands' End**

Dodgeville, Wis.  
[www.landsend.com](http://www.landsend.com)  
 IT supported fast, radical shift in business model after acquisition by Sears.

Business intelligence software utilized to counter sales lost due to inadequate inventory.

Frank Giannantonio, Senior VP and CIO  
 Mindy Meads, President and CEO  
 FY03 revenue: NA  
 Employees: 10,000

**Staples**

Framingham, Mass.  
[www.staples.com](http://www.staples.com)  
 Single gateway to third-party vendors allows business managers to set up new vendor links quickly without IS involvement. Fraud detection engine reduced chargebacks by more than 100 percent.  
 Scott Floeck, CIO  
 Ronald Sargent, President and CEO  
 FY03 revenue: \$13.2 billion  
 Employees: 60,000

**Toshiba America Business Solutions**

Irvine, Calif.  
[www.copiers.toshiba.com](http://www.copiers.toshiba.com)  
 Content management at this decentralized organization, with 90 percent of staff in the field, saves \$750,000 annually in marketing distribution costs. E-learning and training accelerates integration, facilitating 10 acquisitions in 15 months.  
 Dan Langham, Senior VP, CIO and CFO  
 Dennis Eversole, CEO and President  
 FY03 revenue: NA  
 Employees: 2,500

**W.W. Grainger**

Lake Forest, Ill.  
[www.grainger.com](http://www.grainger.com)  
 Custom inventory availability tool utilized by sales staff 20,000 times in a one-month trial, netting \$182,000 in add-on sales. End-to-end supply chain improvement cut cycle time by 30 percent.  
 Timothy Ferrarell, Senior VP of Enterprise Systems  
 Richard Keyser, Chairman and CEO  
 FY03 revenue: \$4.7 billion  
 Employees: 15,000

## TECHNOLOGY SERVICES

**GSI Commerce**

King of Prussia, Pa.  
[www.gsicommerce.com](http://www.gsicommerce.com)  
 Standard software base gives e-commerce customers a menu approach to services and enables extremely fast rollout of e-commerce capabilities.

Joseph N. Seibert, Senior VP and CIO  
 Michael G. Rubin, Chairman and CEO  
 FY03 revenue: \$241.9 million  
 Employees: 1,034

**High Performance Technologies**

Reston, Va.  
[www.hpti.com](http://www.hpti.com)  
 Group of IT experts is ready for rapid deployment on projects such as building the infrastructure for managing evidence from the caves of Afghanistan.  
 Marty Shoup, Group Lead, Senior Technical Directors  
 Timothy P. Keenan, President and Managing Partner  
 FY03 revenue: \$34.9 million  
 Employees: 200

**SecureWorks**

Atlanta  
[www.secureworks.com](http://www.secureworks.com)  
 Open-source software utilized to develop, test and launch new service in 60 days—120 days early. In-house CRM programmer worked closely with CRM installation team to implement tracking module in two months.  
 Wayne Haber, CIO  
 Michael Cote, President and CEO  
 FY03 revenue: \$15 million  
 Employees: 78

**Via Training**

Portland, Ore.  
[www.viatraining.com](http://www.viatraining.com)  
 Open-source software for internal IT infrastructure and certain applications kept costs low during ramp-up period. Flash components and reusable code lower cost and enable multilingual delivery of training material.  
 Paul Irvine, VP of Engineering  
 Robert Aughenbaugh, President  
 FY03 revenue: \$12.2 million  
 Employees: 110

## TRANSPORTATION/DISTRIBUTION

**ABF Freight System**

Fort Smith, Ark.  
[www.abf.com](http://www.abf.com)  
 Rapid deployment of online applications for customers and B2B partners, including shipment tracking, rate quotations, reports, dynamic routing of in-transit shipments, a wireless tracking solution and XML connectivity.  
 Michael Newcity, Manager of

E-Commerce Systems  
 Robert Davidson, President and CEO  
 FY03 revenue: \$1.4 billion  
 Employees: 13,000

**Con-Way Transportation Services**

Ann Arbor, Mich.  
[www.con-way.com](http://www.con-way.com)  
 Business software components reused to launch a new business unit, supported by XML-based status alerts that led to an on-time rate of more than 98 percent and a guaranteed delivery service.  
 Jackie Barretta, VP of Information Services  
 Gerald L. Detter, President and CEO  
 FY03 revenue: \$2.2 billion  
 Employees: 18,000

**DHL Express**

Plantation, Fla.  
[www.dhl-usa.com](http://www.dhl-usa.com)  
 Time-to-market for new products, project delivery success rates and ROI of change initiatives all improved by project, program and portfolio management.  
 Steve Bandrowczak, Senior VP and CIO of Americas Information Services  
 John Fellows, CEO  
 FY03 revenue: \$27.8 billion  
 Employees: 40,000 (U.S.)

**FedEx Corp.**

Memphis, Tenn.  
[www.fedex.com](http://www.fedex.com)  
 Popular Temporary Assignment Program cut down learning curve by using current employees rather than contractors. New shipment information application coordinated customer calls. New portfolio review board moved 150 IT employees to higher-priority projects.  
 Robert B. Carter, Executive VP and CIO  
 Frederick W. Smith, Chairman, President and CEO  
 FY03 revenue: \$25 billion  
 Employees: 200,000

**Schneider National**

Green Bay, Wis.  
[www.schneider.com](http://www.schneider.com)  
 Code reused from a customer-developed, load-sharing website to build a new IT tool. Project management office implemented IT infrastructure solution based on software development process.  
 Steven J. Matheys, CIO  
 Christopher Lofgren, President and CEO  
 FY03 revenue: \$2.9 billion  
 Employees: 21,000



# equant

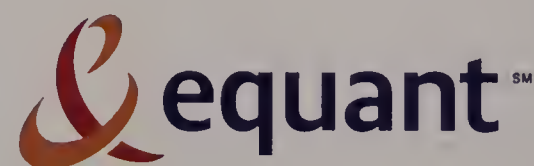
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# ESSENTIAL

# TECHNOLOGY

Edited by  
Christopher  
Lindquist

From Inception to Implementation—**IT That Matters**



When the regulators  
came knocking,  
Pinnacol Assurance  
had to move quickly  
to save millions  
in revenue

## Agile Insurance

BY THOMAS WAILGUM

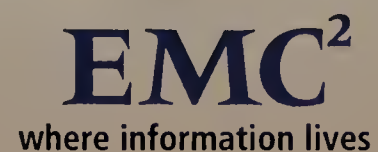
**AGILE INFRASTRUCTURE** | Like setting off a bomb in the middle of the policy and claim management and accounting systems: That's how CIO Robert Norris remembers what happened when the Colorado Division of Insurance regulators came knocking earlier this year. "You can't do this," they told him and his company, Pinnacol Assurance. "It just isn't fair to everyone."

The problem was SelectRisk, a new product worth nearly \$9 million in business that Pinnacol was already selling to more than 100 customers. It was a complex insurance program that would give back some of the premiums paid by a group of customers if their losses were low. Pinnacol, however, had designed SelectRisk specifically for a particular set of customers whose losses were usually small and who took safety seriously. And that was the issue: The regulators felt that the exclusivity violated state insurance regulations. Unfortunately for Pinnacol, the IT applications supporting SelectRisk were also complex. Changing them would require heavy modifications from Norris's team.

Rather than fight the regulators, Pinnacol set out to create a new product that would satisfy the state's requirement to make the product available to every customer—while not losing any existing customers in the process. How it did that—and how quickly IT responded to new busi-

ILLUSTRATIONS BY PETER BENNETT





Fr: compliance as a test of IT infrastructure

To: compliance as a routine part of your day

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ness demands—is only one of several reasons why Pinnacol is a member of this year's CIO 100 agile honorees.

## Old Roots

Pinnacol Assurance is not your typical insurance company. Founded in 1915 as the State Compensation Insurance Fund, its mission was to ensure that workers' compensation insurance was available to all employers in Colorado. Over time, unfortunately, the stigma of being "the insurer of last resort" befell the organization. It was an organization, the perception went, that could never fail or go out of business; legally, employers would always have to compensate their workers injured on the job. Seventy-two years and a \$500 million deficit later, with customer service levels plunging, the company needed a serious restoration.

Pinnacol's CEO inherited "a company challenged by inadequate premium rates, out-of-control expenses, underwriting deficiencies and redundancies in their systems and procedures."

With a name change to the State Compensation Insurance Authority in 1987, the organization transitioned from state agency to a quasi-public authority, meaning it was no longer under the direct control of the Colorado General Assembly. Gary Pon, Pinnacol's CEO, took the reins in 1986. He inherited "a company challenged by inadequate premium rates, out-of-control expenses, underwriting deficiencies and redundancies in their systems and procedures," says Bill Shenton, a managing director with Conning & Co., an asset management company with a focus on insurance company investments, who has been following Pinnacol for more than a decade.

In 1999, the company's name changed again, this time to Pinnacol Assurance. The corporate culture shifted too. Thanks to a management restructuring and the removal

of departmental silos in favor of multidisciplinary teams, Pinnacol was primed to operate more like a lean business and less like a bloated government agency. The first job on the to-do list for Pon, Norris and the other senior executives was to erase the remaining deficit and create a surplus.

IT would play a starring role in this transformation. Pinnacol's long struggle to integrate a new enterprise client and server system—its experience with expensive IT consultants functioning in various departments with minimal oversight and poor IT alignment with the business—had created a mess. "I was brought in to clean up that mess," says Norris, who came aboard in 1997.

The featured player in the IT department was—and continues to be—an insurance software package called WCIS. It was purchased in 1996 from Price Waterhouse (now

PricewaterhouseCoopers), though today it bears little resemblance to its original form. Norris and his developers have essentially rewritten WCIS so that it meets Pinnacol's claims management, policy pricing and policy administration needs. They've also added more than 20 new modules for medical billing adjudication, investigative and safety consultation management and more.

Making those kinds of customizations to prebuilt software may not sound like agility in action. But Norris is proud that the system's simplicity and flexibility lets his staff of 50 stay nimble. All core business systems run on the integrated application architecture and share a single corporate database. As a result, "Pinnacol has virtually no application integration issues that would create drag in our response to business demand," Norris says.

## Keeping Things Fresh

**Pinnacol Assurance** CIO Robert Norris likes standardization. His consistency is borne out of a desire to keep his users happy. Every one of Pinnacol's 530 employees, for instance, receives a fully loaded Gateway PC running Windows 2000. All of those PCs were purchased at the same time, during a six week span, two years ago. "We replaced every PC in the building," he says. "Everyone has the same platform. That way people on the help desk don't need to ask, 'What operating system are you on?'"

Norris takes the same approach for his data center, with just a few exceptions. For mission-critical applications and databases, he has standardized on Oracle database engines, Sun Solaris operating systems and Sun Sparc servers. For basic network applications, Pinnacol uses Novell NetWare, typically on Dell servers. However, Norris says he has a handful of Linux and Windows boxes in the data centers that handle certain functions where he couldn't find a solution that would fit his standards. For example, on Windows 2000 or XP, Pinnacol runs a fax server, a document management system and a remote access server.

As far as standardization goes, Norris says, "I don't know why other companies don't do this. If you look at older environments, the maintenance costs of an aging fleet of equipment are prohibitively higher."

Norris concedes that precise metrics for his hardware-updating strategies sometimes aren't easy to come by, but he seems more focused on the greater good of the user community and how it relates to overall company profitability and efficiency. "I'm always amazed by employees from other companies who are trashing their IT departments," Norris says. "One of my primary objectives is to have the employees of this company rave about the IS department."

—T.W.



Thus, Norris was able to stay calm when the state insurance regulators came calling about Pinnacol's SelectRisk product. "The mood was not one of panic so much as significant concern about potentially losing this business, coupled with a heightened sense of urgency given that we needed to act quickly to satisfy regulatory concerns," Norris remembers. Pinnacol decided to cut SelectRisk. But it needed to create a replacement quickly.

A task force was formed with members from IT, underwriting, accounting and internal audit. Within weeks, a new product, called Group Large Deductibles, was crafted to address both the needs of the original SelectRisk customers and regulatory concerns. First, Pinnacol moved away from returning premiums to customers based on loss performance and instead adopted a method wherein customers pay a certain premium

ings took place to unearth a new approach. Phase two was determining—from both a business and an IT standpoint—how to go about doing it. "Internally," Norris says, "we knew we could perform the operation." And lastly, the company realized that it needed the solution yesterday. Without such rapid response, he says, the large book of business (and millions of dollars) would have been lost. "If we had given control of our applications to someone else, we would not have been able to respond."

The results have been tangible, Norris says. In the past five years, premium revenue has risen 176 percent, while internal operating expenses increased only 38 percent (from \$48.5 million to \$67 million). And that financial success was matched by dramatically increased flexibility. If IT had been faced with the SelectRisk problem seven

Pinnacol's developers are grouped into small teams that collaborate on projects in specific business areas, such as online systems or claims and policy management. Eventually, they become business experts in those areas.

up front while maintaining trust accounts for premiums that they might have to pay later, depending on their losses. Next came the supporting IT applications. Group Large Deductibles, it turned out, required extensive tweaks. The changes to WCIS involved enhancing the billing system and Pinnacol Online, altering how Pinnacol accounts for deductibles, developing new automated forms, changing the quoting system, providing trust accounting capabilities and tweaking WCIS's interface to the general ledger.

"With this new program, we preserved the original group of customers, plus we gave ourselves another tool to attract new business," Norris says. The changes were designed and implemented in a few weeks. Phase one, Norris says, was figuring out what they were going to do. Hastily called meet-

years ago, things would have gone in a very different direction, Norris says. It would have been met with excuses, not agility. Now, IT is responsive to today's competitive realities. "We have, over the course of six or seven years, developed such high expectations in our customers, and those expectations have become baseline," says Norris. "That is the Achilles' heel of being a truly agile IS department: No good deed goes unpunished," he jokes.

### Working Close to Home

To keep things speedy, Norris employs a stable of 15 software developers. They're not outside contractors on his speed-dial; Norris keeps them even closer at hand. He claims that Pinnacol has no dependency on software vendors or consultants; everything

Thanks in part to agile IT systems, Pinnacol reported in late 2003 that it was close to its **\$250M** surplus target, seven years ahead of schedule.

is handled inside by his team. Those developers are grouped into small teams that collaborate on projects in specific business areas, such as online systems or claims and policy management. Eventually, Norris says, they become business experts in those areas. "I don't understand how other companies compete while abdicating their control over their systems to someone else," Norris says. "The more that companies start to run like one another [governed by the same systems capabilities], the less the opportunity for them to differentiate themselves competitively."

Norris, however, isn't blind to the drawbacks of keeping all of his development within Pinnacol's walls. "Software development isn't an easy process, and it presents management challenges," he says. Challenges come in the form of increased expenses in areas that he could possibly outsource for lower costs. In the end, however, Norris feels that if the system is "touched" by the majority of Pinnacol's employees, then "there are opportunities to add value to make the software customized to the way they work."

Pinnacol also stays agile with a nonbureaucratic, flat-as-a-board hierarchy. In IT, for example, there's Norris and the four teams that work on programming, decision support, infrastructure and desktop support. One



manager oversees each group. Each group gets a tremendous amount of leeway, trust and responsibility. And there's not a lot of fat among the ranks—even though these 50 IT staffers support 530 Pinnacol employees who, in turn, support 57,000 customers who, in turn, do nearly \$500 million in annual business with Pinnacol. "Everyone [in IT] is either one or two steps away from me and the CEO," Norris says. "It's not an organizational model that works with people who need a lot of supervision."

Likewise, his project management and software development methodologies seek simplicity and speed. Project management is partly based on Project Management Institute standards. The other part is built on business alignment, high-level executive sponsorship and project chunking—breaking projects into manageable pieces as opposed to dealing with monolithic ventures. One peculiar thing Pinnacol's project management does account for is scope creep. "It assumes that scope could change because business requirements usually change; so it prescribes how to handle scope creep rather than try to prevent it," Norris says. Software development follows a rapid application development skeleton, mixed with some elements of extreme programming. Small squads of software developers work together on the projects. They start with small releases, then add functionality. IT enforces coding standards, programmers have direct access to users, and the developers go home on time. "It's not a particularly remarkable strategy," Norris says.

Though he may downplay the strategy, Norris knows that his IT department's agile execution is tied directly to Pinnacol's new-found approach to its business and customer service. "We don't want to be just good, because success is often one's own worst enemy," he says. "If there's a better way of doing something, the IT department will know how to make it better." And now they'll do it much faster.

Staff Writer Thomas Wailgum can be reached at [twailgum@cio.com](mailto:twailgum@cio.com).



## Dialing Up Baby

**DIGITAL PLAYPEN** | Ask a teenager about cool cribs and he'll probably start spouting about Ludacris's, Shaq's and Nelly's houses on the music television approach to home shows, MTV's *Cribs*. Ask somebody at Accenture Technology Labs, however, and you'll get a different answer.

The "online playroom," recently demonstrated by the labs, allows people to remotely monitor and interact with babies in a computerized crib with enough gadgets to make even Lil' Romeo a lil' jealous. The crib includes a webcam, electronically controlled toys, Internet-accessible sensors, and other features designed to let baby Jenny or Jimmy interact with grandma no matter how far over the river and through the wood she lives. Remote visitors can speak to and take pictures of the baby, make toys move, play games and music, and even go face-to-face through a built-in video screen. To keep people from bothering the baby too much, parents get complete control over who can access the crib and when.

The goal of the technology demo was to

put a variety of Internet-enabled technologies through their paces, to demonstrate how such tools could be operated using an intuitive user interface and to show what kinds of applications could be built on top of the emerging "networked home" infrastructure. "We're trying to paint the emergence of intelligent home services," says Luke Hughes, research director of Accenture Technology Labs. "The crib is one application, but you can imagine educational services coming in that way." Hughes also pointed to other Accenture Labs projects such as a digital wardrobe that can dish out fashion advice, and an online medicine cabinet capable of monitoring a user's health.

Hughes says the crib is only the leading edge of what could become a widespread trend in the near future, with the Internet as a core communications medium for social networking as well as for interacting with the physical world. "In the future, you won't go on the Internet to surf virtual worlds, you'll go online to surf reality."

—Christopher Lindquist





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**Gregor Bailar**,  
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Capital One Financial  
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**The New IT Workforce.**

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**Abbie Lundberg**,  
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CIO Magazine on  
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Agenda.**

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unique insight into  
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# Executive Summary

AUGUST 15, 2004

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**The Agile 100**—For our 17th annual CIO 100 Awards, we selected 100 organizations in which highly developed IT agility enables agility across the enterprise. Why agility? In this uncertain economic environment, enterprises must be ready to turn on a dime, either to scale back or aggressively seize the moment. *By Edward Prewitt*

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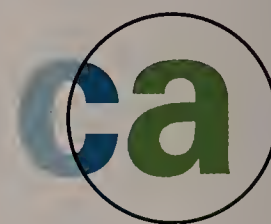




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